

American Aviation

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INDUSTRY
SINCE 1937



**Canadair's
John Jay Hopkins**

(See page 4)

JULY 9



An exclusive look
at AF expansion

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American Aviation

Volume 15 Number 6

THE INDUSTRY'S FIRST NEWS MAGAZINE

NEWS SECTION

July 9, 1951

a LOOK at the WEEK

National Production Authority's aircraft division will submit substantially higher requests for controlled materials for production of commercial and personal aircraft in fourth quarter of 1951 than were submitted for third quarter.

There are evidently still some differences over powers to be given to Harold R. Boyer, if he takes over as chairman of Aircraft Production Board. The General Motors executive is expected to meet soon with government officials to try to get powers clearly defined. He hasn't formally accepted the job yet.

Some aircraft manufacturers are plugging overtime as one inducement to new workers. A Los Angeles firm, for example, guarantees 53-hr. week and \$105 minimum for experienced machine operators.

Employment in aircraft industry totaled 413,200 in April, a jump of 160,000 over same 1950 month, according to Labor Department's latest figures. Total is expected to be up 18% by October. Also expected to increase is percentage of women employed (15.1% of April total).

Aircraft industry hopes appointment of Manly Fleischmann to head Defense Production Administration as well as NPA will eliminate some of the confusion that has existed between the agencies. DPA policy decisions affecting aviation haven't always been carried out by NPA.

Important appointment: Melvin L. Anshen has been named acting DPA deputy administrator in charge of programs and requirements office. Under him is requirements committee, which has powerful voice in all materials allocations.

Current demands for nickel and molybdenum are almost four times greater than the supply, and both may be rationed soon.

Air Force has decided it won't call CAA reservists to duty except under unusual conditions, thus easing what has been a critical situation. Over one-third of air route traffic and airport traffic controllers are in reserve, and AF has been taking them.

Defense Asks Prototype Delay

Department of Defense has gone on record as being opposed to enactment of any prototype aircraft construction legislation until after the Prototype Aircraft Advisory Committee has filed its report and recommendations.

The committee, composed of top-level representatives of government aviation agencies, including Defense Dept., is scheduled to meet July 20.

Defense's position was sent to Congress in a letter from John A. McCone, Acting Secretary of Defense, to Rep. Lindley Beckworth (D., Tex.), former chairman of the transportation subcommittee of the House Interstate and Foreign Commerce Committee. Committee members did not interpret the McCone letter as closing the door on enactment of prototype legislation, but merely as a desire to get a decision which would represent all parties at interest.

The prototype bills under consideration in Congress provide for design, construction and testing of various types of aircraft for civil use, but which would be adaptable to national defense needs.

RFC Loans Centralized

New ruling that all future loans made by the Reconstruction Finance Corporation will be decided in Washington, except in cases involving disaster, has been issued by RFC Administrator W. Stuart Symington.

Heretofore, RFC's regional offices could make loans up to \$100,000 without approval from Washington.

Prospective borrowers will continue to make applications at one of the 32 regional offices of RFC, however, and regional managers will continue to make recommendations as to approvals and disapprovals.

CAA Issues Revised Airport Plan

Fifth annual revision and three-year forecast of CAA's National Airport Plan lists needed airport construction or improvement projects at 4,945 locations, of which 2,288 would be new fields.

CAA has estimated, for its own guidance, that the cost of the work outline in the plan will be \$662,000,000, including \$323,700,000 in federal aid grants and \$338,300,000 in local sponsor funds.

The revision lists airports by service types rather than by usual numerical classes. It proposes:

2,310 personal type airports, 1,524 new and 786 for improvement.

1,148 secondary, of which 350 would be new.

656 feeder, 75 new and 581 for improvement.

303 trunk, including 12 new.

77 express airports, 3 new and 74 for improvement.

64 continental and larger, including five new.

304 seaplane bases and 83 heliports.

Colonial, Janas Face Arraignment

Colonial Airlines and Sigmund Janas, Sr. were to be arraigned last week in Federal Court in New York on 40 counts of alleged violations of the Civil Aeronautics Act.

Misdemeanor informations leading to arraignment were filed with the court by U. S. Attorney Irving H. Saypol at the request of the Civil Aeronautics Board.

Janas, who resigned recently as Colonial's president, has agreed to repay the airline \$75,000 and not to contest charges of alleged violations of law made by CAB (News Issue, July 2). Alfons Landa is Colonial's new president, with Janas acting as a consultant to him.

Colonial and Janas face maximum fine of \$800,000 if convicted.

Truce Ends UAL Strike

United Air Lines strike involving 900 pilots came to a end June 29 after a seven-hour session with National Mediation Board officials beginning at 2 a. m. The return to work under a truce came just as the President was reported preparing to take over the airline and NMB officials were allegedly getting ready to support the discharge of pilots who refused to fly the Douglas DC-6B.

Under the truce, the pilots were not required to fly the DC-6B immediately, but that problem is first on the agenda of discussions between UAL and the Air Line Pilots Association-AFL. Other issues involving demands for a pay system based on mileage as well as flying hours will be taken up afterwards. NMB will continue to try to get both factions together.

Five NWA 2-0-2's to Cal Central

Northwest Airlines is reported negotiating with California Central Airlines, intrastate operator in California, for transfer to Cal Central of five NWA Martin 2-0-2's in exchange for two DC-4's and five DC-3's. Details of the deal have not been released.



MANUFACTURERS

Tool Price Hikes: Builders of machine tools have been permitted by the Office of Price Stabilization to raise their prices to reflect overtime and premium shift payments as well as higher subcontracting costs. The move was made to spur production to a rate of \$1 billion a year by the end of 1951.

Australian F-86: North American Aviation has licensed Australia to build the F-86E jet interceptor. The Sabre, powered by a Rolls-Royce Avon, will be produced by Commonwealth Aircraft Corp., Melbourne.

Job Outlined: Wage Stabilization Board has told its tripartite Airframe Committee to see whether there are any special wage problems in the industry, recommend solutions if such problems exist, and propose a definition of the industry for wage stabilization purposes. Committee will meet in Los Angeles on July 12.

McCulloch Expansion: McCulloch Motors Corp. has purchased the Davis Precision Machine Co. plant for use by its aircraft division, while the aircraft division plant will be occupied by McCulloch's research subsidiary, Paxton Engineering Corp. Davis firm will move to Hawthorne, Calif. MC-4 helicopter, now in process of certification, will be built at old Davis plant.

McDonnell Offer: McDonnell Aircraft Corp., which leases its plant and acreage from St. Louis for \$480,000 a year, has offered to pay \$4,224,484 plus any savings it might get in tax amortization certificates for the facilities. The figure represents 42.4% of the Government's original cost in 1940—same percentage paid by other airframe builders for U. S. plants between 1946 and 1950.

Bendix Sub-Contracts: In 10 months, Bendix Radio Division, Bendix Aircraft Corp., sub-contracted \$33,000,000 in business to 622 suppliers. More than \$12,000,000 went to small business firms.

Ford Plant: A 400,000 square foot plant to produce fuel injection systems for the Wright R-3350-57 engine will be built near Ypsilanti, Mich., by Ford Motor Co.

Marlin Contract: Marine Aircraft Corp. obtained a million dollar contract to produce tail surfaces for the Martin P5M-1 Marlin flying boat.

Boeing Classes: Employee training classes and the USAF's B-47 familiarization training school will be moved from Boeing's Wichita plant to downtown Wichita buildings. Students taking B-47 combat training at the Municipal Airport are not affected.



PLANES & EQUIPMENT

Lighting Standardization: International Air Transport Association panel believes low visibility approach lights should be standardized on center-line configuration. Alternate suggestion, involving slope-line system, has been dropped because failure to agree on one system has delayed any installation in many instances.

Collins Indicator: A course line indicator, which provides information and displacement from a selected course until an ILS approach has started, has been developed by Collins Radio Co. An approach horizon used with the indicator contains attitude and steering information. These two instruments and an altimeter and air speed indicator provide all information needed for flight navigation.

B-36F Deliveries: Consolidated Vultee Aircraft Corp. has started deliveries of the B-36F, long range bomber powered by six 3,800-horsepower Pratt & Whitney R-4360-53 engines. Present B-36D's use a 3,500-horsepower R-4360.

HK-1 Flight Tests: A Reconstruction Finance Corp. contract with Howard Hughes specifies he must have his flying boat in the air again by Sept. 1. RFC, which owns the craft, has \$15,000,000 invested while Hughes has spent \$17,000,000 of his own on the plane. After the tests are completed he can either return the flying boat to RFC or lease it for \$1 a year until the end of 1960.

Jet Helicopter: Britain's Westland Aircraft Works has completed a design study for a jet helicopter capable of carrying 100 combat troops or 15 tons of cargo.

Convair-Liner Change: An extensive structural reinforcement program has been completed on 65 of 79 Convair-Liners owned by American Airlines. This increases the allowable gross landing weight of the planes by 1,200 pounds.

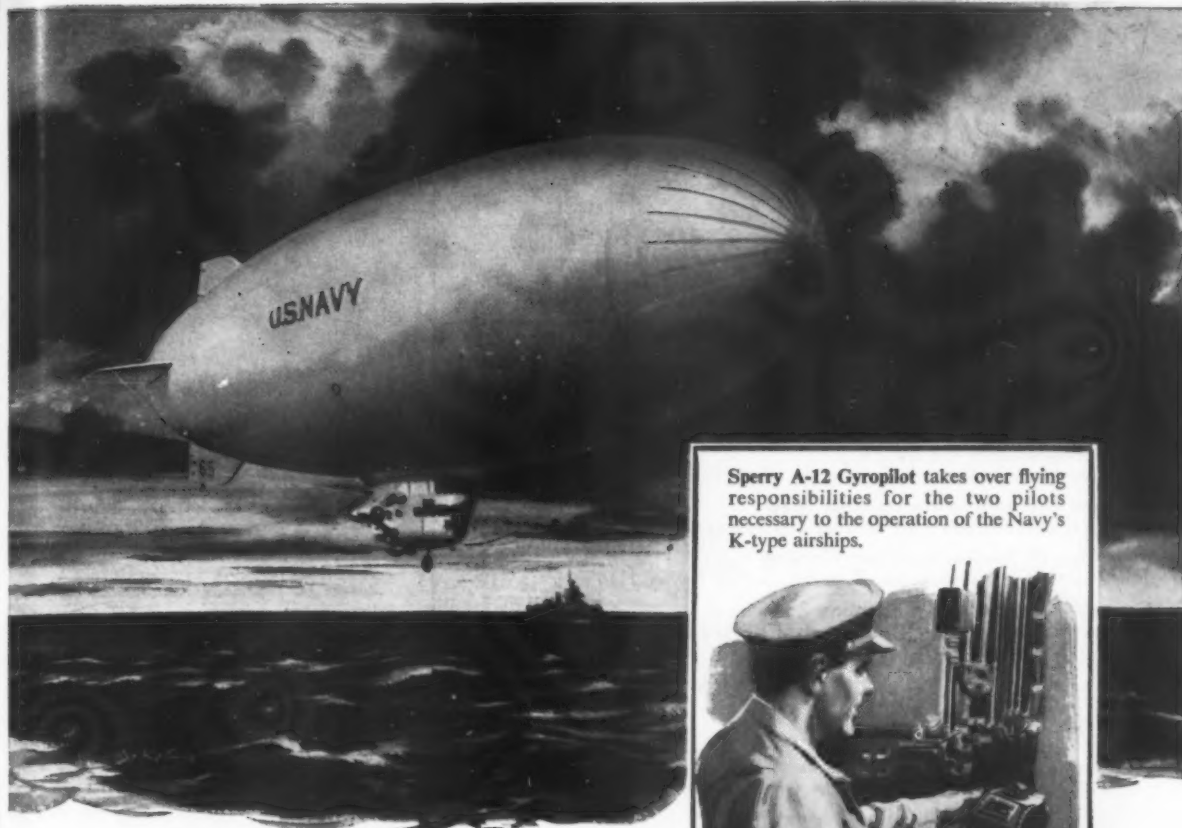
Southwest's Appeal: Hearing will be held July 30 on Southwest Airmotive Co.'s appeal from a temporary injunction keeping it from operating test stands before 7:30 a.m. and after 5:30 p.m. and on Sundays. Residents of the Love Field, Texas, area got the injunction, claiming noise ruined their sleep and damaged their property.

'Copter Litter: A new aluminum litter platform for evacuating injured troops by helicopter has been designed by Bell Aircraft Corp. It attaches to the skid landing gear of Bell's H-13D.

Digital Analyzer: North American Aviation, which is preparing a flying lab for in-flight testing of guided missile components, will place in it a digital differential analyzer which can figure out equipment proficiency mathematically. The device is built by Computer Research Corp. and has passed ground shake-down tests.

Liquid Rheostats: The world's largest liquid rheostats are being produced at Westinghouse Electric Corp.'s Buffalo plant to regulate the speed of electric motors being installed at Tullahoma, Tenn., USAF research center.

(Continued opposite page 64)



Sperry A-12 Gyropilot takes over flying responsibilities for the two pilots necessary to the operation of the Navy's K-type airships.



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Cover Photo

THE DRIVING force behind Canadair, Ltd. is 58-year-old John Jay Hopkins, president and chairman of the board. A Californian by birth, Hopkins is president of Electric Boat Company, New London, Conn., which owns Canadair outright. A graduate of Harvard University (with A.B. and LL.B. degrees), Hopkins engaged in law practice until the last war. A director of many corporations he is a member of some 22 organizations and belongs to 14 clubs and business organizations. He virtually operates a flying office, hopping from one part of the continent to the other by company airplane. He spends several days each week in Montreal. For the story of Canadair of 1951, see page 20.

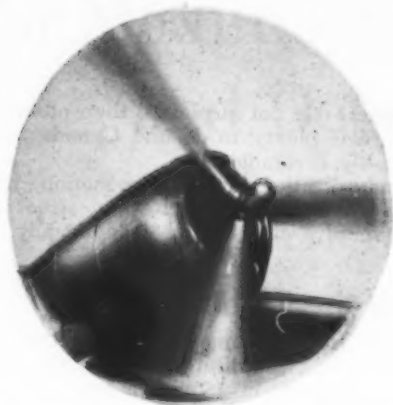
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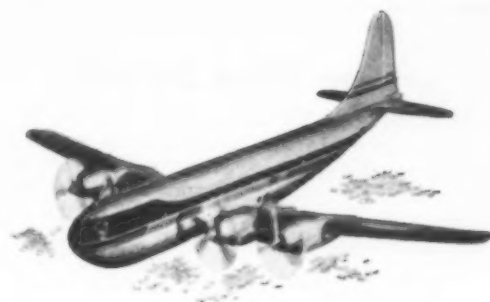
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and Air Force Engineers throughout the country consult with PAC engineers and craftsmen to study these methods. Incidentally, Pacific Airmotive is the only privately owned concern in the country authorized to overhaul these 4360 engines. The CAA has also approved the 25% saving of test-run time, as pioneered by PAC engineers.



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THE CANADIANS are beefing that the U. S. is not living up to the high-sounding words in the Canadian-U. S. pact of economic cooperation by which production facilities and skills of the two countries would be freely exchanged in the interest of hemisphere defense.

A look at the record would indicate that they have every reason to beef. So far the "economic cooperation" pact has been a one-way street leading south.

Canada agreed to standardize on aircraft, training, ordnance, planning—everything, right down the line. This was a sensible move. When it comes to defense the two countries have everything in common. Not to standardize would have been foolhardy.

But Canada is buying about \$900 million worth of war material including airplanes, engines and parts, from the U. S. over a period of three years. At the moment the total orders placed by the U. S. in Canada are about *one-fifteenth* of that. All the orders we've placed north of the border consist of one order for guns, one order for about 500 de Havilland single-engined Beavers, and a share of the Beech T-36 trainer contract which will involve a few hundred airplanes plus some designing and subcontracting. This is the total extent of reciprocity.

It isn't a matter of sentiment. Canada needs dollars. She's getting short. She can't continue to buy far more from us than we buy from her without running into exchange trouble.

She can't cut down on her military purchases because she agreed to standardize on all war equipment. So now when she needs a particular type of airplane, and lacking something of her own, she has to buy in the U. S.—and the plane must be completely standard.

Thus when Canadair began to build the North American F-86 Sabre for the Royal Canadian Air Force, Canada didn't benefit her dollar situation one iota. Engines and parts and accessories have to be bought in the U. S. If Canada were building the F-86 for the U. S. A. F., then her dollar situation would be vastly improved. Building a U. S.-designed airplane is only beneficial dollar-wise when the airplane is being built for the U. S.

Canadair, Ltd. entered its own design in the advanced trainer competition at Wright-Patterson Field recently. It came within an ace of winning. Had the prime contract been given to Canada, the 15 to 1 ratio of reciprocity would have been eased materially.

We certainly are not advocating that the U. S. aviation industry be sacrificed or diluted in order to maintain a trade balance with Canada, but high defense officials will have to find some means of spreading the production work now that it has been agreed that we are to spread the work of defending

the hemisphere. If not airplanes, then other defense work. There is plenty to do and Canada's facilities are reasonably diversified.

Standardization and reciprocity must be more than mere words. A one-way street on procurement simply won't work economically.

Merging the Trunks

FAR-REACHING changes in the nation's airline network are in the offing. During the next year or two the number of trunk carriers is bound to be reduced from the present sixteen to perhaps half or two-thirds of that number.

It is good that both the Civil Aeronautics Board and the carriers themselves are in general accord that judicious merging can result in a stronger and more self-sufficient network.

The Big Four have proved that they can operate efficiently and profitably with only a compensatory mail pay. But the record is clear that no matter how efficient a secondary carrier may be, it will continue to rely upon mail pay unless it has a route potential. The combining of some of the secondaries into major systems would seem to be a sensible move.

Meantime the CAB seems determined to move toward what CAB Chairman Donald Nyrop calls a "two-level route structure" composed of a self-sufficient trunk system and a subsidized local service system. Weaker local lines are doomed but the healthier ones will be strengthened, partly by transferring local stops from the trunks.

There has been a strong but less vocal opinion in the air transport industry that trunklines could carry the unprofitable local stops with least expense to the government, but this point of view has been relegated to the background. Perhaps in the light of Congressional determination to separate mail pay compensation from "subsidy" the two-level structure is preferable in terms of political expediency.

It is well that the CAB does not plan to issue a fixed "national plan" and try to force it on the industry. There are any number of consolidations and combinations that will bring about the desired goal of economic self-sufficiency. It is best to leave the driving force to industry itself although the CAB will probably reject any mergers that do not fit into the over-all goal. The merging of two weak carriers by no means insures one strong one.

There are many merger discussions current. Some of these parallel very closely the CAB's own plans. They can be effected providing the CAB itself cooperates and providing one or two of the CAB members do not already have political or other commitments which may work against the kind of mergers that will save mail pay.

So far in his short term as chairman, Don Nyrop has proved to be a clear thinker and a driving force for good. This year and next are ideal to simplify the nation's route structure. Most of the airline managements know that mergers are a good thing. Handled rightly, the present CAB may be able to perform in a relatively short time what the I.C.C. has been unable to do in the over-competitive and debt-ridden railroad industry.

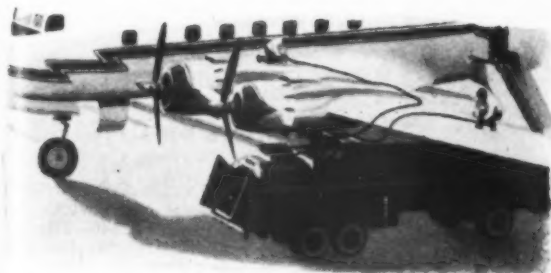
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(signed) M. G. BEARD, Chief Engineer, American Airlines

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Letters

Service Complaint

To The Editor:

This airline business is going exactly like it was before. It is getting casual, callous. You get your reservations confirmed, you get to the airport and they are gone. You go into a place to get information, and if it is any effort you can't get it . . .

They did the same thing in the 1940's, so that a DC-4 was leaving with no one on it, and if the airlines . . . do not value the passenger more than they do today we are in for another bust . . . What is happening? Has the love of this business left the peoples' minds? This is still a new business; it's going to take a lot of effort, and this honeymoon we are in right now is not going to last forever. If we are going to go 'railroad' we are through.

E. B.
New York, N. Y.

Convention Selling

To The Editor:

I read with great interest the article in the June 11th issue of *AMERICAN AVIATION*, "Airlines Convention Selling."

I do not want to appear as a "me-tooer," but I think you should know that All-American Airways has been extremely active and successful in seeking convention business as an added source of revenue.

All-American has several prime convention cities on its routes, the main one, of course, being Atlantic City, N. J., and now added to that as of June 1st, Asbury Park, N. J.

Twice monthly a convention bulletin is issued from our main office in Washington, D. C. to every All-American station and all travel agencies in our area. From these bulletins our station personnel send out a convention card and when possible follow up with a telephone call. We feel that even though there is a high percentage of "no sales" in this type of program, we have in each instance called attention to All-American Airways and educated each contact to the fact that our airline serves their area.

WILLIAM J. MITCHELL
Regional Sales Manager
All-American Airways, Inc.
Pittsburgh, Pa.

More on C-46

To The Editor:

We noted with interest the write-up in the May 28th issue of *AMERICAN AVIATION*, Page 15, entitled "C-46—The Airplane Nobody Wanted." We call your attention to a few pertinent facts.

It was mentioned that United Services for Air was a corporation which has since disappeared from the aviation scene. However, the fact remains that the name United Services for Air is still in the scene. The original corporation was succeeded a few months ago and business was continued at the

(Continued on page 60)

SPOTLIGHT IN KOREA

CARGO PLANE GUIDES AIR DROP IN STORM

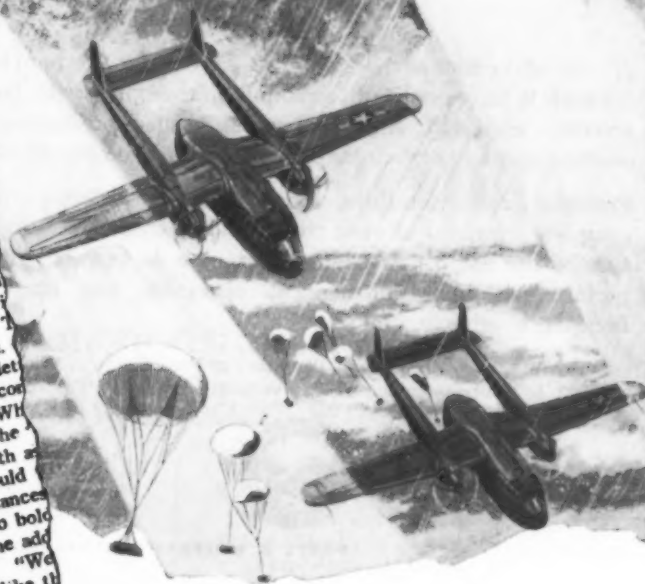
AN AIR BASE IN JAPAN, Jan. 21—Flying Boxcars dropped critically needed supplies to infantrymen in Korea last night during a snow storm so dense one of the big planes had to circle the area for four hours to guide the others to the right place.

The pilot who flew his loaded C-119 from this air base, said he arrived at the designated spot after fighting a heavy snow storm for two hours and dropped his cargo.

With darkness closing in the pilot realized other transports would have a hard time finding the area.

He climbed to 4,000 feet, leveled off and circled. His co-pilot contacted other C-119s en route to the drop zone. As each plane of the 314th Combat Cargo Wing reached the area, the hovering plane flashed on its landing lights. The other planes then swooped down and dropped their cargoes.

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When & Where

- July 9-18—Mass. Inst. of Tech. Special course, automatic stabilization and control of helicopters.
- July 11—NATA Tri-State meeting, Myrtle Beach, S. C.
- July 19-20—NASAO board of directors meeting, Ky. Dam State Park, Ky.
- July 20-22—CAP Natl. Drill Competition, D. C. area.
- Aug. 15-19—99's 5th ann. All-Woman Transcont. Air Race. Santa Ana, Cal., to Detroit.
- Aug. 18-19—National Air Races, Detroit, Michigan.
- Aug. 22-24—Institute of Radio Engineers and 7th ann. Pacific electronics exhibit.
- Aug. 22-26—99's Intl. Conv. Mackinac Island, Mich.
- Aug. 25-29—Natl. Flying Farmers Assn. 5th ann. conv., Ft. Worth, Tex.
- Oct. 2-4—Aircraft Spark Plug and Ignition Conf., Hotel Secor, Toledo, Ohio.
- Oct. 4-6—Southeastern States Airport Operators Council ann. meeting, Manteo, N. C.
- Oct. 11-12—Airport Management and Opns., 1951 conf., U. of Okla., Norman, Okla.
- Oct. 18-20—Fifth Annual Arizona Aviation Conference, Phoenix.
- Oct. 24-27—NASAO annual meeting, Arizona Inn, Tucson.
- Dec. 17—15th Wright Bros. Lecture, U. S. Chamber of Commerce, Washington, D. C.

International

- July 17-18—European Ignition conf., Savoy Hotel, London.
- Sept. 3-14—Third Internl. Conf., convened jointly by the Royal Aero. Soc. and the Inst. of the Aero. Sciences of America, Brighton, Sussex, Eng.
- Sept. 4—ICAO, SAR, 3rd session, Montreal.
- Sept. 10—IATA 7th Ann. General Meeting, London.
- Sept. 11—ICAO, Legal Committee, 8th Session.
- Sept. 12-14—Soc. of British Aircraft Constructors, 12th Flying Display and Exhibition, Farnborough, England.
- Oct. —Royal Aero. Soc. 7th British Commonwealth & Empire Lecture, London.

CAB Calendar

- July 9—(Docket SR-7-201) Oral argument before the Board in Civil Aeronautics Administrator vs. Aviation Corporation of Seattle, d/b/a Westair Transport. 10 a.m., Room 5042, Commerce Bldg., Washington.
- July 12—(Docket 4852 et al.) Hearing in Empire Air Lines Certificate Renewal Case. 10 a.m., Georgian Room, Marcus Whitman Hotel, Walla Walla, Washington. Examiner Ralph L. Wiser. (Will move to Washington, D. C. August 1).
- July 12—(Docket 2824 et al.) Oral argument before the Board in Florida-Bahamas Service Case. 10 a.m., Room 5042, Commerce Bldg., Washington.
- July 23—(Docket 4052 et al.) Hearing in Mid-West Airlines Certificate Renewal Case. Tentative.

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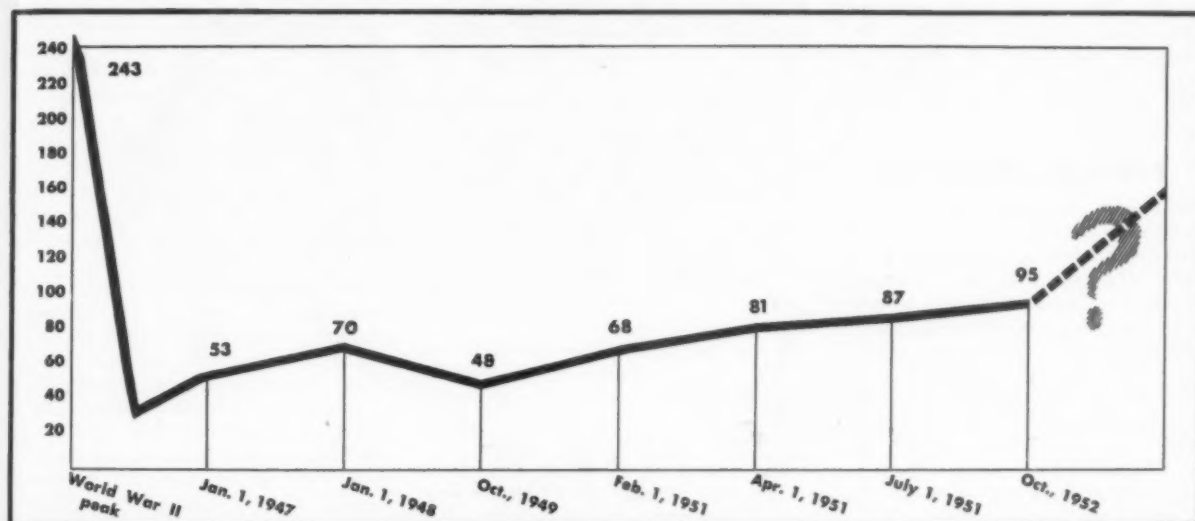
Made of Avtrim sheeting, backed

with fabric and sponge rubber, this rug is so tough that it far outwears other kinds. It resists scuffs and scratches. It can't be hurt by grease, oil or any ordinary stains and chemicals. Things that are spilled on it don't soak in, can be easily wiped up. Thorough cleaning is done with soap and water, or any standard solvent, without removing the rug.

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FIRST IN RUBBER



HOW THE AIR FORCE has fared in group (now wing) strength since its World War II peak of 243 is shown above. The 48 figure of October, 1949, marked the low point reached under former Defense Secretary Louis Johnson's economy program.

An Exclusive Look at USAF Expansion

New demands for more than 95 wings won't be made until early 1952; top limit not set.

By JAMES J. HAGGERTY, JR.

ALTHOUGH planning now for a big increase in strength beyond its present 95-wing goal, the Air Force won't make any expansion requests before the first of next year, AMERICAN AVIATION learned last week.

For some time it has been evident that the Air Force was not content with its authorized size, the 95-wing goal, which is still some 15 months from attainment.

Secretary of the Air Force Finletter, Under Secretary McCone and Chief of Staff Gen. Hoyt S. Vandenberg have all made public statements to the effect that 95 wings are not enough to meet the international commitments of the USAF.

But while it was obvious that sooner or later the USAF would come forth with some new demands, there was no information as to when they would come. Speculation had it that the USAF would kick over the traces during hearings on the fiscal 1952 budget, sched-

uled to start any day now, and ask for a strength authorization beyond that recommended in the President's budget. Such is not the case.

The latest addition to the USAF's high command, new Assistant Secretary Roswell L. Gilpatric, provided AMERICAN AVIATION with the timetable. Frankly admitting that the Air Force will seek to go beyond the currently authorized 95 wings, Gilpatric said that:

- **The Air Force will make no new demands during the fiscal 1952 hearings and will defend its budget on the basis of 95 wings, pointing out, however, that it is considered inadequate and that there will undoubtedly be a request for added strength later.**

- **No definite strength has been decided upon at the moment and no formal request for additional strength has been forwarded to the higher levels of command for approval.**

- **In October or November of this year, after the USAF has had a chance to study in detail its requirements for global defense, a program will be de-**

cided upon and probably presented to Congress after the first of the year in the form of a supplemental 1952 appropriation request.

Vandenberg's recent statement before a Congressional committee that the 95-wing Air Force was a "shoestring" organization encountered some criticism among military observers. Why, it was asked, did the Air Force defend a 95-wing organization as adequate during hearings on last year's second supplemental appropriation (post-Korea) and then switch to the "shoestring" theme when it came time to testify on the fourth supplemental only a few months later? There are two answers:

- **The military has come upon new intelligence regarding Russia's air potential, information which pointed up the fact that Russia was far better prepared to wage a global air war than had previously been believed.**

- **Increasing tension in Western Europe, coupled with a re-evaluation of Soviet tactical air strength in that part of the world, has convinced the air planners that the portion of a 95-wing Air Force which could be diverted to Europe would be wholly inadequate for the task assigned it.**

There have been a number of guesses

as to what new strength the Air Force will request. The figure of 125 wings seems to be the most often repeated. Sen. Henry Cabot Lodge (R., Mass.) has called for a 150-wing Air Force, of which 48 wings would be tactical, or ground support. Lodge, although well-informed, is speaking only for himself, the Air Force is careful to point out. Some other informed observers think the USAF may ask for as many as 175 wings. These figures compare with a peak World War II strength of 243 combat groups.

Estimates Premature

But these estimates, although one of them will probably come close to the mark, are premature, according to Gilpatric. The Air Force, at the moment, is preparing several strength estimates, each dependent upon a number of variables. For instance, what size Air Force will be required to meet the situation in Korea? How many divisions would the U. S. send to Europe? What size ground force will our allies in Western Europe muster and how much of the air power required to back it up will we have to supply?

Another item to be considered is how much the treasury will stand. With a 1952 defense budget which some observers estimate will run as high as \$90 billion after all the supplemental requests are acted upon, the national economy is in jeopardy. Their detractors to the contrary, Air Force planners are citizens, too, and they must balance

their requirements with the national economy.

With the status of Air Force future strength so vague at the present time, the answers to corollary questions which come to mind must also be necessarily vague.

• **What will an increased program cost?** The only yardstick available comes from Sen. Lodge who, undoubtedly after obtaining rough estimates from the Air Force, said that his 150-wing program would cost an additional \$25 billion a year until attainment. This program envisions the addition of 3,600 tactical planes plus another 6,000 planes for operation by North Atlantic Treaty countries, as well as a build-up of the USAF's strategic bombing force.

• **Where will the emphasis be as we go beyond 95 wings?** This again, Gilpatric points out, is subject to resolution of the variables mentioned before. However, it is almost certain that the *major emphasis will come in tactical air power.*

This is not to imply, however, that other phases of the expansion will be neglected. Under Secretary McCone made that very clear recently:

"This force (95 wings) will not provide the interceptors necessary for an acceptable defense of the United States, or indeed sufficient to match the capabilities of the radar early warning network now under construction.

"The strategic Air Force is still the world's most powerful instrument, but nevertheless the capacity of this force—

our means of delivering the atomic bomb—is not keeping pace with atomic development."

Will Need Reserves

• **What will be the personnel requirement?** The USAF hopes it can obtain the bulk of its required personnel through enlistments and the draft, but undoubtedly a program of any size beyond 95 wings will involve recall of reserves, particularly in the officer categories. A rule of thumb, based on the present personnel strength, is that each wing added will necessitate an additional 10,000 men. This does not mean that one wing has 10,000 men; but addition of one extra wing requires additions down the line in all of the noncombat branches.

One of the reasons for the speculation that the demand for increased strength would come within the next month or so was the fact that the 95-wing strength is only 15 months from attainment. Observers reasoned that, if a gap in production flow was to be avoided, the Air Force would have to start ordering equipment for the wings beyond No. 95 within the next few months.

Such is not the case, however. Although the schedule calls for 95 wings by about October, 1952, they will not be completely equipped with modern aircraft. Production of new equipment for the 95 wings runs through 1953 and in some cases into 1954. Thus the Air Force has plenty of time to determine its needs and start placing orders without fear of a production "valley," or gap.

Orders by March

According to Gilpatric, the Air Force will determine the wing structure it needs by October or November of this year. The program will then be submitted to the Armed Services Policy Committee, which is composed of the Secretary of Defense, the three service secretaries and the Joint Chiefs of Staff, for approval. Following approval, the program will be submitted to Congress as an appropriation request, probably just after the start of 1952. If it is passed, orders for the additional equipment should start flowing about next March.

As of now, the Air Force has 87 of its 95 wings organized and a total of 1,060,000 men in service. The build-up to 87 has been comparatively rapid, but from now on it will slow down. Although the USAF gained six wings between March and the end of June, it will take 15 months to organize the remaining eight. The reason is that the USAF has now reached the point where it must await deliveries of new aircraft in order to equip new wings.

What Is A Wing ?

ALTHOUGH the Air Force switched from the use of the term "group" to "wing" more than a year ago, the new terminology is still causing some confusion among followers of military doings, the opinion being in some quarters that a wing is more than one combat group. This was true during World War II, but today the terms "wing" and "combat group" may be used interchangeably.

However, although there is only one *combat group* in an Air Force wing, there are also a number of supporting, non-combat groups. As an example, here is a breakdown of the composition of a wing of Boeing B-47 jet bombers (although there are as yet no operational B-47 wings). Personnel figures used are war-time strength:

• **One combat group**, which consists of three bombing squadrons and one air refueling squadron. Each of the bombing squadrons has 15 B-47 aircraft. The refueling squadron has 20 tankers, either Boeing KB-29's or KC-97A's. Total group strength, 1,600 officers and men.

• **One maintenance and supply group**, consisting of three squadrons: a maintenance squadron of 300 personnel; a supply squadron of 400; and a motor vehicle squadron of 250. Total group strength, 950 officers and enlisted men.

• **One air base group**, consisting of five squadrons: a headquarters squadron, 100 personnel; a communications squadron, 100; an air police squadron, 130; a food service squadron, 200; and an installations squadron, 160. Total group strength, 690 officers and enlisted men.

• **One medical group**, consisting of about 120 officers and enlisted men.

Thus, the B-47 wing has three supporting groups with a total of 1,760 officers and men to keep the combat group, with 1,600 officers and men, in the air.

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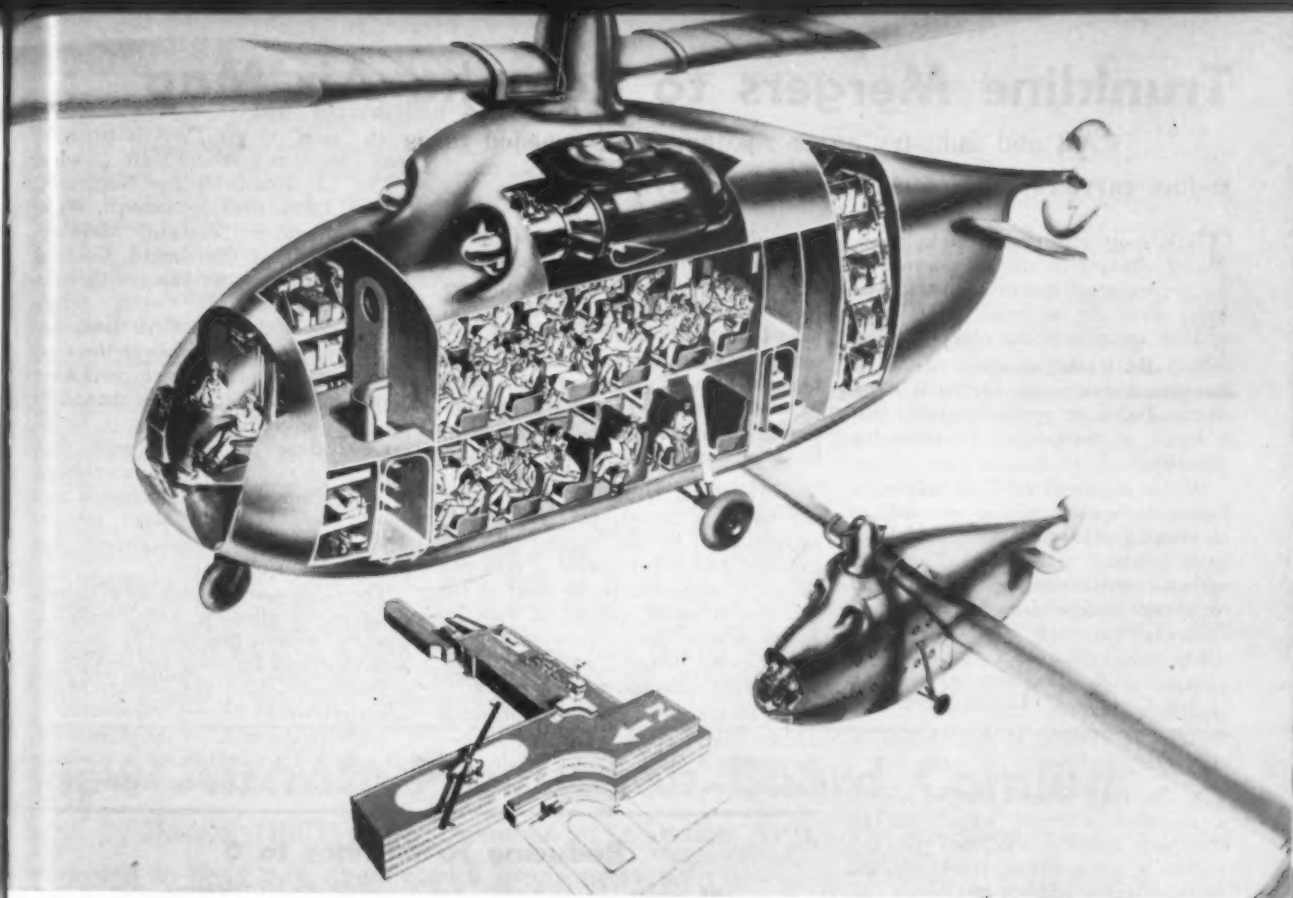
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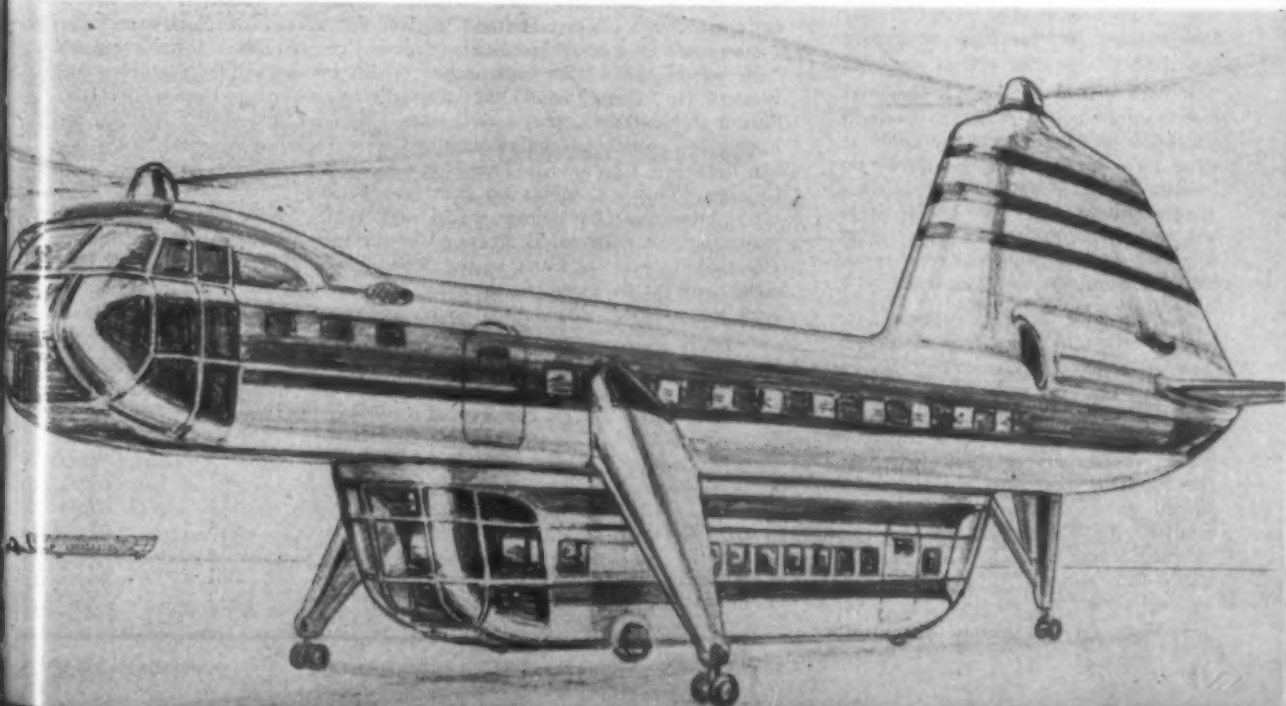
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70-PASSENGER HELICOPTER proposed by Hughes Aircraft Co. This first published sketch of the Model 205 shows the double-decked arrangement for passengers.

Two Glimpses into the Future

40-PASSENGER XH-16 of Piasecki Helicopter Corp., as seen below, is a twin-rotor craft called the Airline Connection Version.



Trunkline Mergers to Remake Air Map

CAB and industry agree realignment is needed to reduce carriers' dependence on air mail pay.

THE most important and far-reaching changes in the composition of the air transport system of the United States since the air mail cancellations of 1934 are now in the making.

Both the leading elements of the air transport industry and the Civil Aeronautics Board are generally agreed that a series of mergers of trunklines is desirable.

Within six weeks the CAB will make known its specific wishes with regard to merging. The CAB will not offer a fixed national plan but will suggest various combinations which will lead to greater independence of trunklines from mail pay.

Meantime there are numerous discussions going on within the industry regarding mergers.

Here, in essence, is the comprehensive policy picture:

1. The CAB believes there should be a two-level structure within the air transport industry composed of economically self-sufficient trunklines and of local service airlines for which sizeable mail pay will be required in the future.

2. There has been a growing recognition among secondary trunklines that their economic salvation rests with mergers, that no matter how efficient a small trunk may become by itself, it will forever be restricted and dependent upon higher mail pay unless it has more earning potential by serving more heavy-volume routes.

3. Both industry and CAB recognize that Congress is determined to spotlight air mail subsidy in the future and that some form of separating compensation from subsidy is inevitable. Judicious mergers would avoid the subsidy problem entirely for the trunks. Many small stops on trunks could then be transferred to local service lines.

4. The local service airlines have already been told that they must remain local lines in their respective regions, that the weak ones will not survive, and that the ones showing constant improvement will be aided. One important barrier to mergers of trunks has been the fear that local lines would be permitted to expand and become competitive; the CAB has gone to considerable length in recent weeks to establish a firm policy restricting local lines to local service for all time.

5. With the sad history of railroad

competition and losses before them, CAB believes that this is the politically expedient time to effect major changes in the trunk routes. It believes it will have brought about an historic achievement if it can produce a balanced competitive network receiving only compensatory mail pay. From the administration standpoint this would be beneficial for the 1952 election year.

6. The CAB recognizes that it does not have the power, per se, to force mergers. But it can suggest and encourage. And it has a lever of mail pay to use if necessary. In its favor is the fact that it seems inclined to want industry to take the initiative so long as the proposed mergers have the end result toward economic self-sufficiency.

All of the area of activity surrounds 12 secondary carriers. The Big Four—American, United, Trans World and Eastern—are expected to remain pretty

much "as is" unless TWA is strengthened somewhat here and there.

The 12 secondaries are Northwest, Capital, Delta, Braniff, National, Western, Chicago & Southern, Mid-Continent, Northeast, Continental, Colonial and Inland, the latter being a division of Western.

It is doubtful if the CAB itself has come to any conclusion about the final desired number of trunks. Figures have ranged from six to ten. But if the CAB's goal of self-sufficient lines is to be realized there can be no more than about six to eight. This goal is ambitious to an extreme, however, because it isn't always easy to bring about mergers where stockholders, management and politics are in opposition.

The CAB stands a very good chance, however, of effecting some important mergers within the next 12 months. Several should be ready for popping in a short time. Mail pay savings to the taxpayers would be very substantial.

Right in the midst of the merger discussions is Harold D. Koontz, professor of business policy and transportation of

Reducing 16 Airlines to 6

Here is how Harold Koontz would re-make the air transport network to form six economically self-sufficient systems:

- He would leave **American** and **United** just as they are.
- He would add to **TWA** all of **Continental**, and **Braniff's** route Kansas City-Wichita-Oklahoma City-Fort Worth/Dallas-Houston and Tulsa-Oklahoma City-Denver.
- He would add to **Eastern** all of **Mid-Continent**, and **Braniff's** route Chicago-Kansas City, and Memphis-Tulsa.
- He would make up a fifth major system by combining the domestic routes of **Northeast**, **Colonial**, **Delta**, **National**, **Chicago & Southern** and **Capital** (except Capital's Chicago-Detroit-Cleveland-Pittsburgh-New York route) plus a new route Cleveland-Cincinnati. (This is Combination A in table below).
- He would make up a sixth major system by combining **Northwest** and **Western** (including **Inland**) plus **Capital's** route Chicago-Detroit-Cleveland-Pittsburgh-New York, plus a new route Chicago-Denver-Salt Lake City-San Francisco, also nonstop flights permitted New York-Los Angeles, New York-San Francisco, Chicago-San Francisco, Chicago-Los Angeles, and New York-Chicago. (This is Combination B in table below).

How these six systems would rank competitively with regard to the passenger mile potential as measured by the intercity route traffic of the top 100 ranking pairs of cities in the September 1948 and March 1949 CAB airline surveys, is shown in the table below. TWA and Eastern are shown with the additions enumerated above.

	Average Number of Top 100 Pairs Served	Total Passenger Miles of Pairs Served (000,000's)	Potential to Airline Based on Equal Proration (000,000's)	Average Number of Carriers Serving Pairs
American	43.5	269.5	98.7	2.7
United	38	256.9	87.6	2.9
Trans World	40	240.3	85.5	2.8
Eastern	26.5	155.9	70.8	2.2
Combination A	27.5	153.6	70.1	2.2
Combination B	33	242.8	90.1	2.7

No Trunkline Ambitions

Presidents and representatives of 17 local service airlines attending the Local Service Airline Seminar at Purdue University, West Lafayette, Ind., on June 21-22, adopted a resolution stating that the local operators agree that they will remain in the local field.

This disavowal of trunkline ambitions occurred along with an informal meeting of the operators and the five CAB members. The CAB again told the operators that it was working up a special type of certificate for local operators specifying that the local companies are to remain local.

the University of California (Los Angeles) whose article proposing six major systems appears in the spring edition of *The Journal of Air Law and Commerce* a few weeks ago.

Koontz is a former assistant to the president of TWA and former director of commercial sales for Consolidated Vultee Aircraft Corp. While he presumably was writing quite independently of what was going on in CAB and the industry, his proposals have stirred up a great deal of interest and

coincide to a remarkable degree with both CAB thinking and actual merger discussions in industry.

Koontz theorizes that the size of an airline alone does not dictate efficiency. He points out that many of the secondary carriers are just as efficient, and some more so, as the Big Four. But the smaller carriers don't serve enough major points to become economically self-sufficient. They have no way of becoming independent, of higher mail payments.

As he puts it, the major problem is "the size and character of the market facing each domestic carrier." To illustrate, he singled out Continental Air Lines as an efficient airline, one of the best in this regard, but serving a very weak area without hitting a single one of the top 100 pairs of cities generating heavy traffic.

Koontz' study is exhaustive in showing the heavy traffic routes of the country, all based on CAB traffic surveys. His entire study was based upon parceling out the 100 top pairs of cities in such a way as to give competitive balance for six major systems, each of which would presumably be independent of subsidy mail payments.

There is no doubt that Koontz will have a deep effect on the current thinking in CAB and industry even though his specific combinations may not come to fruition. Those who have been seeking a way out of dependence upon air mail will find a general solution in his arguments, regardless of how the combinations are made up.

New Aircraft Production Board Coming

Harold (Bill) Boyer, member of wartime APB, expected to head new agency with broad powers.

By ROBERT LOEBELSON

AN Aircraft Production Board, similar to one using the same name during the war years, is expected to be established in the near future but its exact powers will be defined only after the Board starts holding regular meetings under a permanent chairman and the specific problems of the aircraft industry become apparent.

Pointing to these facts are:

- **A statement** by Defense Mobilizer Charles E. Wilson that such a board would soon be established under the Defense Production Administration.
- **Unearthing** by AMERICAN AVIATION of DPA's Administrative Order No. 7 creating an APB and broadly outlining its powers.
- **Several meetings** in the last three months by representatives of various government agencies concerned in one way or another with aircraft production. These have constituted "informal" APB meetings.
- **Strong rumors** in Washington that the Board will be headed by Harold R. (Bill) Boyer, present director of production engineering for General Motors Corp. and a member of the wartime APB.

According to the DPA administrative order establishing the Board, its mem-

bership will consist of a chairman to be appointed by the DPA Administrator (probably Boyer), the Administrator of the National Production Authority (Manly Fleischmann), a representative of the DPA (W. W. Watts, deputy administrator in charge of the Office of Procurement and Production), the chief of the NPA's Aircraft Division (Joseph J. Mitchener, Jr.), a representative of the Defense Department and other representatives of the Armed Services and the Munitions Board.

Informal Meetings

Sitting in at past informal meetings besides Watts, Fleischmann and Mitchener have been Brig. Gen. John K. Christmas, Chief of the Army's Procurement Division; Rear Adm. Thomas S. Combs, Chief of the Navy's Bureau of Aeronautics; Lt. Gen. K. B. Wolfe, USAF's Deputy Chief of Staff-Materiel, who retired June 30 and will probably be replaced on the APB by Maj. Gen. Orval R. Cook, his successor; Cornelius W. Middleton, vice chairman of production requirements management for the Munitions Board; and D. W. Rentzel, Undersecretary of Commerce for Transportation.

No representatives from the aircraft industry are expected to sit on the new APB. Manufacturers will point out

their requirements through the various members.

The new APB will be set up in the Defense Production Administration, an agency directly under Mobilizer Wilson's control. Its chairman is scheduled to be responsible to Watts, who is responsible to DPA's newly appointed administrator, Manly Fleischmann (also head of NPA), who in turn will answer to Wilson himself.

It was pointed out that APB has been set up at a high level in the government's pyramid of mobilization agencies, mainly because Wilson is convinced of the need for such an agency near the top, where it will be able to exert power to ensure planes being produced on schedule.

The DPA order gives the Board responsibility for the over-all coordination of the plane production program. The Board will determine "through established agencies the total requirements, including military, commercial and civilian, for aircraft and will recommend the allocation of the available supply of materials and facilities" for plane production when the supply is not enough to meet all requirements.

Administrative Order 7 also gives the APB power to formulate and recommend "policies and procedures for insuring required production, including the scheduling of aircraft components; expansion of facilities; conservation; standardization, and related matters."

These powers roughly parallel those granted to the World War II APB,

which was headed by Charles E. Wilson—the same man who now directs the complete mobilization program. And few in the aviation industry will deny that Wilson's APB, which also was manned by the late Lt. Gen. William S. Knudsen, Maj. Gen. Oliver P. Echols, Rear Admiral E. M. Pace and T. P. Wright, did a good job of ironing out production irregularities.

Power Needed

It seems fairly evident that if and when Boyer takes the job, he will accept it only on the condition that he have the power to carry through the scheduling program necessary to insure enough planes for defense.

An additional clue to the possible working of the newly created DPA agency may be found in a brief review of its successful predecessor, the wartime APB:

Reporting directly to the APB were the **Civil Requirements Branch**, dealing with civilian planes; the **Project Service Branch**, handling expediting of facilities; and the **Project Rating Branch**, in charge of priority ratings of facility projects. Executive agency of the APB was the **Aircraft Resources Control Office**, staffed by T. P. Wright and representatives of

the Bureau of Aeronautics and the then Army Air Forces.

This office co-ordinated airplane and engine schedules with the military and presented them to the Joint Aircraft Committee and the APB for approval. ARCO also supervised the **Resources Division**, which dealt principally with materials. The **Conservation and Standards Division** coordinated between the armed services, the War Production Board and industry all matters involving conservation and standardization of materials for the aircraft program. ARCO also had a **Manpower Division** which pointed out requirements for workers to the War Manpower Commission, the Army and Navy and the WPB.

Another organization which was responsible to ARCO was the **Aircraft Scheduling Unit** at what is now Wright-Patterson Air Force Base, Dayton. This group prepared the requirements for the air program in terms of materials and presented them to WPB through ARCO as the claimant agency for the air program. This unit also handled the allocation and distribution of materials and handled all industry contacts for ARCO.

The current APB cannot possibly be

as potent unless the cold war with the Russians warms up more than it has since Korea. But congressmen and other government officials, daily becoming more convinced that airpower is definitely needed, will probably not hesitate to give the new APB wider powers as they are needed. As one DPA official put it, "There will be nothing to stop APB from going directly to Wilson if it can't get what it wants any other way."

Creation of the Aircraft Production Board thus marks the next to last step in the often-expressed wish of aviation people that something be done to insure aircraft in the air rather than on paper. If the last step is taken—the granting of adequate power to APB—that wish will undoubtedly become a reality.

Lockheed Freighter Wins Competition

Lockheed Aircraft Corp. has won the Air Force's design competition for an air freighter capable of carrying 25,000 lbs. of cargo over a 2,000-mile range.

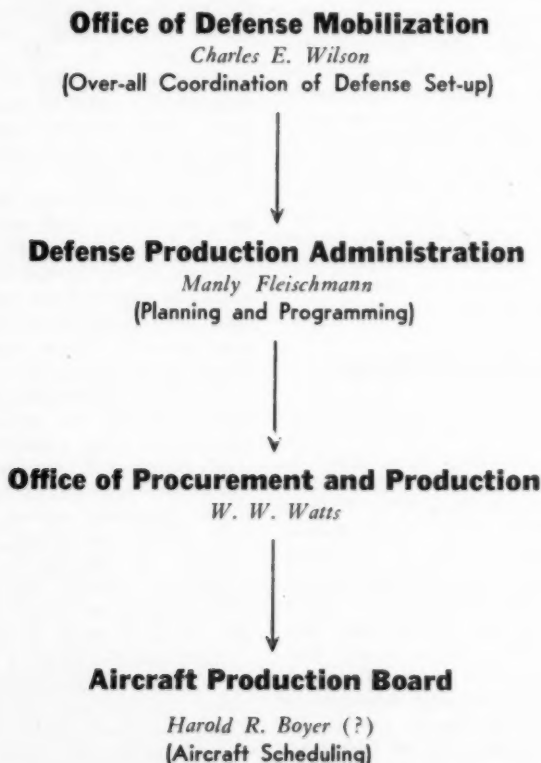
Lockheed had submitted two designs for a four-engined high-wing plane, one using four Allison T-38 turboprops and weighing just over 125,000 lbs., and the other using Wright R-3350 Turbo-Compound engines, weighing slightly less.

Other companies in the competition were Douglas Aircraft Co., Boeing Airplane Co., Chase Aircraft, and Airlifts Inc.

C-W Rocket Engine First With Throttle

Curtiss-Wright Corp.'s XLR-25 rocket engine, the first rocket power plant capable of being throttled like a jet engine, has passed reliability tests at the corporation's Propeller Division plant in Caldwell, N. J., and should be ready for acceptance by the Air Force soon. The engine is destined for use in Bell Aircraft Corp.'s X-2, a swept-wing special research airplane designed for supersonic work.

C-W engineers think they can have the engine ready for delivery to Bell by Aug. 1, and the X-2 flight test program, now years behind schedule, should get under way late this year. There were two major factors in the long delay; Bell's engineering problems in shaping an airframe out of solid stainless steel, and C-W's problems in developing a rocket engine which could be throttled. The stainless steel fuselage is required to withstand the terrific friction temperatures expected to be encountered at the speeds at which the X-2 is slated to fly.



AIRCRAFT PRODUCTION BOARD'S probable chain of command is shown above.

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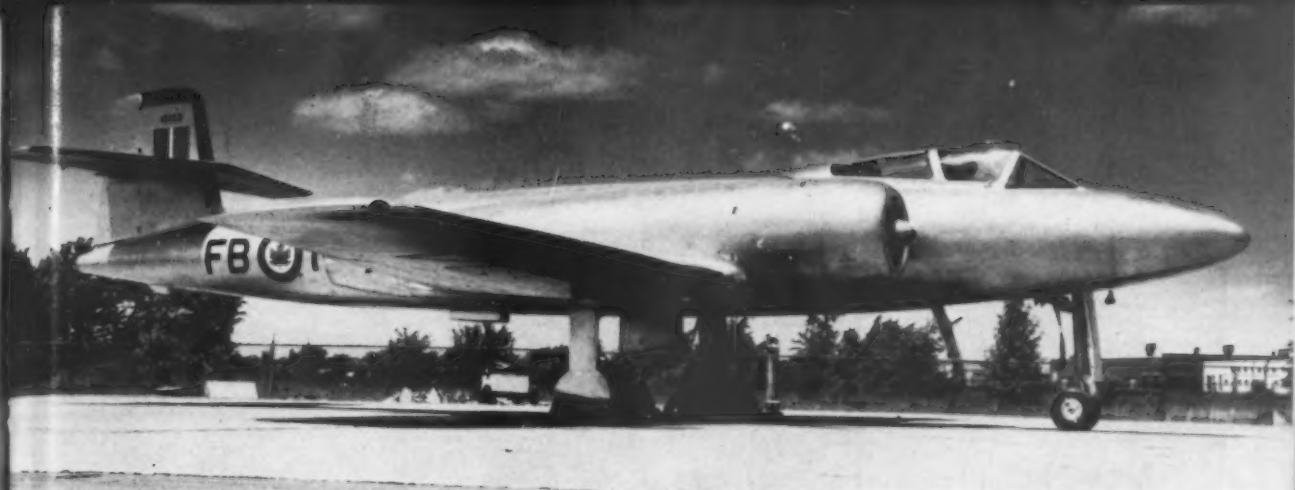
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AVRO CANADA'S CF-100 all-weather long-range jet fighter has made its first flight using the Avro Orenda engine, making it the first all-Canadian craft. Power plant and airframe were both produced in the same plant, possibly for the first time in production history.

New Military Planes

MARTIN'S P5M-1 MARLIN flying boat, shown in takeoff and in-flight photos, has been ordered "in substantial numbers" by the Navy for use in anti-submarine warfare. Well-equipped for electronic submarine detection, the P5M-1 is also easily maneuverable in restricted areas, by virtue of its under-water controls; a keel that extends from bow to sternpost beneath the surface, and hydroflaps, or under-water rudders near the tail. The Marlin is powered by two Wright Turbo-Compound engines, each developing 3,250 horsepower.



SUPERMARINE SWIFT, the Royal Air Force's first swept wing fighter, is an advanced development of the Supermarine 555 shown below and will be powered by a single Rolls-Royce jet engine. Production for the RAF is now under way.





CANADAIR'S Plant No. 1 and . . .



. . . PLANT No. 2

Canadair Gaining Top Production Role

Company, with three big military plane orders, also looks ahead to future commercial market.

By WAYNE W. PARRISH

CANADA'S first aircraft plant fully equipped for large production is getting geared up to do its share for western hemisphere defense.

Canadair, Ltd., at Cartierville, just outside Montreal, has three big production jobs that will put the company in the top ranks of world aircraft producers.

On the books at the moment are the following jobs:

- **F-86.** This is a production contract for the RCAF to build this North-American jet-powered Sabre in substantial quantity. The first contract,

signed in August, 1949, called for 100 planes but the quantity has been upped many times over and will keep one part of the plant busy for an indefinite period.

- **T-33.** This, too, is a production contract for the RCAF of the Lockheed twin-seat trainer version of the F-80 Shooting Star. Between 400 and 500 will be built starting in a few months at a cost of about \$200,000 each.

- **T-36.** Canadair entered its own design, the CL-16, in the Wright Field competition for an advanced trainer but the contract was awarded to Beech Aircraft Corp. As consolation, the USAF asked Canadair to share in the Beech

contract to the extent of building several hundred units complete, materially aiding Beech in completing the design of the T-36 and of accepting sub-contract work from Beech for the latter's own part of the production work.

This work will all be for the USAF although it is possible that the RCAF will want some in due course. Since much engineering work remains to be done it may be five months before actual production gets under way. The T-36 will seat about 12, be powered with two Pratt & Whitney R-2800 engines, will have a cruising speed in excess of 300 mph and a maximum speed of about 390 mph.

Canada has long wanted a healthy aircraft industry, but getting one hasn't been easy. It has finally made the grade with Canadair, which has been built into a first-class company during

the past few years. The secret of its present position is the gathering together of a team of men with know-how—and getting its plant adequately equipped with machines to do an entire production job.

Back in 1942 the Canadian government built the plant and turned it over to Canadian Vickers to manage. In 1944 Canadair, Ltd., was formed to manage the plant on a fee basis. Before the war was over some 400 PBV Catalina flying boats had been turned out. Then the company turned its attention to building the North Star, the four-engined transport plane that merges the DC-4 and DC-6 under license from Douglas Aircraft Co. Some 71 of these planes, powered with Rolls Royce Merlin 626 engines, were built for Trans-Canada, CPAL, BOAC and the RCAF.

In 1947, Electric Boat Co. of New London, Conn. bought complete control of the company and bought all of the plant facilities from the Canadian government. Aggressive and well-heeled, Electric Boat set out to build up an even better facility and it expanded the factory area considerably. But things didn't start humming until the original F-86 production contract in 1949.

What It Has

Today Canadair has 1,750,000 sq. ft. of factory area, 75,000 sq. ft. of hangar area, 2½ miles of assembly flow lines, 110 acres adjoining a good airfield, and all manner of tooling, milling, turning and other facilities, and a wide range of presses including a No. 46 Hufford of 150-ton capacity. In addition to the main plant Canadair has taken on a long-term lease the old Noorduyt plant across the field and this is currently used for F-86 assembly.

Employment is now 6,000 but will rise rapidly to 8,000 in the next few months and then to 10,000. There is an engineering staff of 200.

One handicap in Canadian aircraft production is the general absence of subcontracting facilities. Canadair is equipped to handle substantial production orders without resorting to major subcontracting but it is possible that it will embark on an educational program of encouraging concerns in the Montreal area to undertake subcontracting.

Whom It Has

In contrast with World War II when aircraft know-how in Canada was scarce, Canadair is staffed with experience today:

John Jay Hopkins, chairman of the board and president of Canadair (see cover photo), is the hard-hitting president of the parent company, Electric Boat Co., New London, Conn. (U.S. capital). The 58-year-old Hopkins, who



J. Geoffrey Notman

is a member of some 22 organizations and belongs to 14 clubs and business groups, operates a flying office, hopping around the continent by company plane. He spends several days in Montreal each week. On Canadair's board are top Canadian and American industrialists.

J. Geoffrey Notman, executive v.p. and general manager, who joined the company last year. Montreal-born, long associated with Dominion Engineering, a large heavy equipment manufacturer, Notman has been a leading figure in Canadian industry for 28 years. He was prominent in World War II as a Munitions and Supply expert.

Robert A. Neale, V.P.-manufacturing, for 18 years with Boeing Airplane Co. and director and operations manager of eleven of Boeing's plants from 1943-47.

William K. Ebel, V.P.-engineering, well known in the U. S. industry and for 25 years with The Glenn L. Martin Co. and later with Curtiss-Wright.

Peter H. Redpath, V.P.-sales, veteran pilot, 13 years with TWA and, until he joined Canadair, was vice president of Scandinavian Airlines System.

Experience in the engineering staff ranges from many well-known U. S. companies to most of the British and some other foreign concerns.

H. Oliver West, former top Boeing executive who went to Canadair after the war and served as president, is no longer with the company. In poor health, West is retiring to his home on the Pacific Coast.

Rated High by AF

Canadair was disappointed, naturally, at not winning the USAF advanced trainer contract. It would have been a ten strike for Canada. Actually, the company rated very high in the competition and Wright Field had indicated at one point that Canadair would be given the prime contract. But its share of the Beech contract will keep both its engineers and its plant busy.

The company is all-out for defense contracts but is determined to find a permanent niche in the aviation industry. For this reason it is devoting detailed study to the transport market. It is possible that a limited line of the North Stars may be re-opened to meet transport requirements, but it is much more interested in hitting the DC-3 replacement market which is still open for challenge around the world.

Parts for C-47's

After World War II it converted about 300 C-47's and is still supplying parts for over 2000 C-47's being operated by a hundred airlines in 45 countries. This gives Canadair a continuing close touch with the world market—its parts business has been substantial.

This writer made his third visit to Canadair just recently. The other trips were in the midst of World War II and just after. There is a world of difference today. It isn't easy to develop a first class aircraft production facility. It takes a lot of know-how. Today Canada has a right to feel that its Canadair facility at Montreal is first-class in every respect.



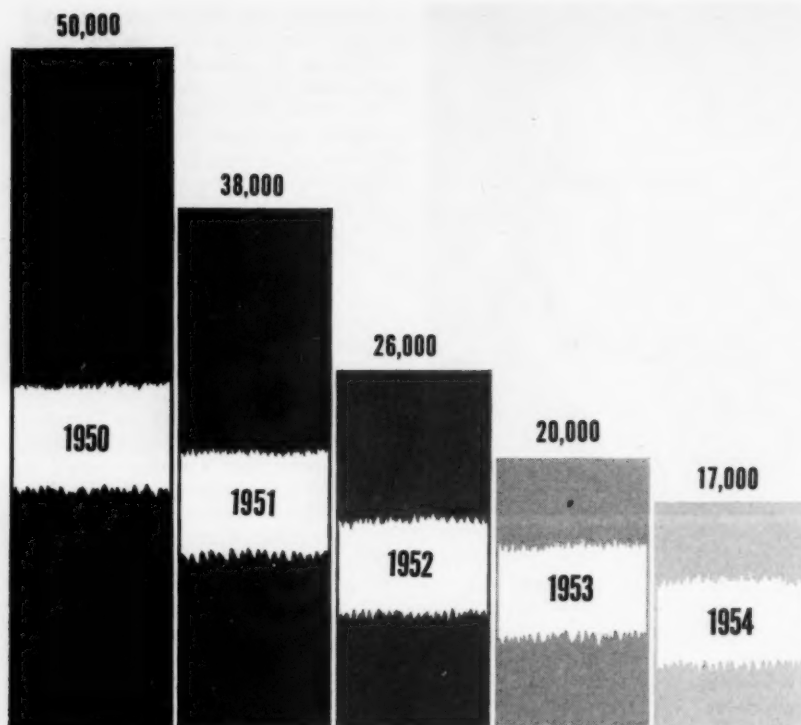
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Neale



Redpath



DWINDLING SUPPLY of engineering graduates, as predicted by Bureau of Labor Statistics and American Society for Engineering Education, is shown above. Estimated minimum need for engineers is 30,000 per year. Just a year ago there were only 18,000 job openings for 50,000 graduates, and high school seniors were being advised not to enroll in engineering schools.

No Early End of Engineer Shortage

Technical school output expected to show continued downward trend through 1954

By KEITH SAUNDERS

POSSIBLY the most critical shortage facing the aircraft manufacturing industry today, and one in which the industry is left largely to its own resources, is that of engineering personnel.

The industry needs literally thousands of design engineers, structural engineers, electrical engineers, draftsmen and men of other engineering skills. The question is: where will these critically needed personnel come from?

It takes four years of college training to produce an engineer, and the colleges today are not turning out enough to meet the needs of industry. Furthermore, the aircraft industry must compete with scores of other industries for the limited available supply on engineers.

Faced with this situation, the aircraft industry must seek to remedy its engineer shortages through:

- Working its engineers longer hours.
- Obtaining draft deferments for as

many of its irreplaceable engineers as possible.

- Bidding for engineering school graduates.
- In-plant training programs.
- Utilization on a part-time basis of the services of engineering school faculty members and senior engineering students.
- Luring engineering personnel away from non-essential industries.
- Hiring of engineers away from one another.

Longer hours: Touching on this point, Bob Woods, of Bell Aircraft, told fellow engineers at a recent S.A.E. meeting that "Enough qualified men to do all we have in mind simply do not exist, so we had better make sure we are using existing capacities to the limit."

An east coast aircraft manufacturer currently short of design engineers and layout draftsmen states in its newspaper advertisements: "50-hour, five-day week,

with generous premium pay for overtime."

Engineers in a number of aircraft plants today are working 45 to 50 hours a week, and in some instances as much as 58 hours. More will be doing so before the end of the year.

Draft deferments: Aircraft Industries Association and personnel departments of the various companies are grappling daily with this problem and are having some success. However, in the case of men doing more or less routine but necessary engineering work, it has become difficult to meet the dual Selective Service tests of *essential employment* in an *essential industry*.

Lost to Military

Consequently, the industry is losing some draftsmen, tracers and others to the armed forces, and these men are almost as difficult to replace as are engineers of higher skills. Furthermore, when there is a shortage of such engineering personnel, a plant's entire program is slowed down.

Engineering graduates: About 38,000 men graduated from the country's engineering schools this year, and from 25% to 30% of them were "earmarked" for military service before graduation. The others virtually had their pick of jobs months before getting their diplomas, large industries having sent scouts into the schools last winter to make attractive offers to engineering seniors.

No one can say for sure how many of these went into the aircraft industry, but the number probably was not very great, since aircraft companies had to bid against much larger and much more stable industries such as General Electric, Westinghouse, General Motors, Bell Telephone and countless others.

All Have Jobs

At any rate, this year's 38,000 engineering graduates all have jobs, as contrasted with the situation just a year ago, when there were only 18,000 job openings for 50,000 new engineers. In fact, it was just a year ago when high school seniors were being advised not to enroll in engineering schools because the job market for engineers was glutted. Now the Engineers Joint Council in New York is launching a campaign aimed in the opposite direction.

However, even if this program is successful, it will have no effect as far as industry is concerned until 1955 or 1956. Meanwhile, the number of graduates will be smaller each year for the next several years, since the last of the large (GI) classes graduated this year.

For 1952, 1953 and 1954, the Bureau



Why cowboys who fly favor this brand



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Everywhere in the Midwest

STANDARD Aviation Gasolines • STANDARD
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Lubricants and Hydraulic Oils • QUAKER
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● The private plane has replaced the pinto pony on many of the western ranges. At Huron, South Dakota, for instance the majority of the customers of the Dakota Aviation Company are ranchers who fly to keep an eye on their wide-ranging herds. These cattlemen are conscious of brands and a familiar sight to them when they set down at the Huron field is the famous sign that offers "Standard Skyway Service." Dakota Aviation has been servicing flying cowboys for 13 years and has a world-wide reputation as a distributor of crop-dusting sprayers and parts. The company has a perfect safety record and there has never been a major accident at the airport. "We've been selling Standard Oil Aviation Products since we started in 1937," says Ed Youngs. "We think that's one reason our customers continue to have confidence in us."

STANDARD OIL COMPANY (INDIANA)

of Labor Statistics and the American Society for Engineering Education predict that the annual supply of engineering graduates (assuming no withdrawals for military service) will be approximately 26,000, 20,000 and 17,000, respectively, as against an estimated minimum need of 30,000 per year.

In-plant training: Such programs have been started in some aircraft plants and are planned for others. About all they can do to overcome engineering shortages, however, is to prepare lesser skilled technicians to take over some of the tasks formerly performed by engineering assistants, aides and draftsmen. This, in turn, frees these men to qualify for more important engineering work.

Part-Time Work

College personnel: Aircraft plants with more engineering problems than their available engineering staffs can handle are seeking to make arrangements with universities and colleges in their localities for the part-time or spare-time services of engineering instructors and assistant professors. And in some instances it is proposed to "farm out" certain engineering projects to senior engineering students, the work to be performed at the school under the supervision of an instructor.

Luring: Some engineers are being induced to leave non-essential industries to go into essential defense work in aircraft plants, but the number of engineers so procured represents only a small trickle as compared to the total need.

Too many engineers remember that from 1946 to 1950, when the nation's economy was booming, the aircraft industry was living from hand to mouth, and they fear it might revert to a similar condition again in the event of any brightening of the international situation.

Pirating: This is a word the industry doesn't like to hear mentioned above a whisper, but it is well-known that a few manufacturers have sought to attract workers, including engineers, away from other aircraft companies by offering them special inducements.

This practice eases the difficulties of some engineer-short companies at the expense of others, but does not increase the total of engineers in the industry.

Many manufacturers doubtless would like to enter into an industry-wide anti-pirating agreement, but the Labor Department has clearly indicated it would be prone to regard this as an unfair combination in restraint of a free labor market.

May Try Rehiring

In addition to all the steps outlined above, the aircraft industry might try to rehire some of the engineering employees it had at the peak of World War II activity, when total employment in the industry exceeded 900,000, of whom probably more than 60,000 were engineers (today the industry's total employment is a little under 400,000, of whom an estimated 25,000 to 30,000 are engineers).

Trouble is that the thousands of engineers who were laid off by the aircraft

industry or were constrained to leave it during the famine years of 1946-1950 have long since found permanent niches for themselves in other industries and could not be persuaded to make another change.

The Defense Manpower Administration, realizing the seriousness of the national defense aspects of the engineer shortage, recently sponsored a conference attended by representatives of the defense agencies, the Engineering Manpower Commission of the Joint Engineers Council, the U. S. Office of Education, the Selective Service System, the Council of State Governments, the American Municipal Association and others.

National Program

These conferences agreed on a national program covering long-range and short-range plans to overcome the shortage of engineering personnel. To date, the following steps have been taken:

1. The U. S. Civil Service Commission has sent instructions to all Federal government agencies regarding the development of a program for maximum utilization of engineers within the Federal establishment, thereby lessening the government's activities as a competitor with private industry for available engineering personnel.

2. States, counties and municipalities are cooperating in a program outlined to the governors of all states to explore the possibilities of making their engineering personnel available on a full-time or part-time loan basis to the Federal defense agencies and to vital defense plants.

Short Courses

3. The U. S. Office of Education has developed plans for a reactivation of the Engineering, Science, Management War Training program followed during World War II for intensive, short-term courses in colleges and universities to prepare persons for specific employment in defense production.

4. The Engineers Joint Council is conducting a campaign of information in the high schools of the country to interest larger numbers of well qualified students in the field of engineering.

These steps and others that are contemplated by government agencies should ultimately ease the engineer shortage, but not in time to be of much help to the aircraft industry, which probably will reach the peak of its need for engineers in 15 to 18 months, or late next year.

One Plant's Engineer Problem

Here's a case history of one company's engineer-shortage problem which serves to point up today's critical situation, although there are a number of manufacturers whose shortage is much more acute than that of the plant involved, The Glenn L. Martin Company.

At the peak of World War II, Martin had about 2,600 engineers on its payroll, exclusive of engineers employed by its numerous subcontractors. As war contracts terminated and postwar commercial contracts fell far below expectations, the company's engineering force dwindled sharply.

A year ago, Martin had only 1,200 engineers at work. The company then had only three models in production, not including guided missiles. It has been hiring additional engineers since then at the rate of about 50 a week, until today it has 1,700 at work on nine major projects, including the P5M-1, the B-57A, the XB-51, the Martin 4-0-4, the Viking and Matador missiles and a target drone.

The company currently needs aerodynamicists and structural and design, propulsion, electronics, electro-mechanical and electronics engineers, and will need to hire at the rate of 50 or more per month for at least the next six months, provided it can find them.

Eight engineering courses are currently being given in the Martin plant, most of which are aimed at giving the company's engineers added proficiency or diversity of skills. In addition, the company has arrangements with Baltimore colleges for special up-grading courses for engineers.



THREE SPEED PAKS are now being used by Chicago and Southern Air Lines to handle special cargo loads, particularly on the route to Venezuela. Note the two rolls, one weighing 1,500 lbs., the other 1,700 lbs., which couldn't be fitted inside the plane but are readily handled in the Speed Pak.

Why Connies Show Profit for C & S

L-649's earning 14c per mile before mail pay; route pattern makes maximum payloads possible

By WILLIAM D. PERREAULT

AFTER LOGGING 10,000 hours flight time on its six Lockheed 649 Constellations, Chicago and Southern Air Lines is convinced that it made a wise move two years ago in deciding to buy the Connies as its four-engine replacement.

When it placed the Connie order in October, 1949, C&S faced a difficult choice. Finances did not make it possible to program a replacement of both twin-engine and four-engine equipment with postwar types. C&S chose to keep its Douglas DC-3's and replace its DC-4's.

C&S believes this decision was the right one because:

• The Constellations are now earning C&S over 14c per plane mile before mail pay.

• Equipment reliability has been exceptional. Despite the changeover from the relatively small and proved DC-4's to the new and larger Constellations, maintenance employment has remained almost at the original level.

• More than 30,000 engine operating hours with the Wright R-3350 engines have been logged since the one and only failure in their scheduled operations.

• Early June figures showed the Connies to be accounting for 67% of the airline's revenue and seat miles while operating less than 43% of the route miles.

• Load factors jumped overnight each time the Lockheeds were introduced on a new route segment. On one particularly important competitive leg, where C&S's percentage of the total traffic had dropped from 75% to 25% when the competitive airline intro-

Equipment Transition

	DC-4's	DC-3's	Connies
June 15	6	12	0
% Plane Miles	36.7	63.3	0
% Seat Miles	58.0	42.0	0
July 15	5	12	0
% Plane Miles	38.24	61.76	0
% Seat Miles	59.59	40.41	0
October 1	3	12	2
% Plane Miles	26.43	62.23	11.34
% Seat Miles	40.66	39.70	19.64
December 15	2	12	3
% Plane Miles	7.84	62.96	29.2
% Seat Miles	12.	40.42	47.58
March 1	0	12	5
% Plane Miles	0	59.34	40.66
% Seat Miles	0	36.08	63.92
June 15	0	12	6
% Plane Miles	0	57.18	42.82
% Seat Miles	0	32.65	67.35

duced postwar equipment, C&S has now regained its original lead.

Prior to the delivery of the first Constellation, C&S was operating six Douglas DC-4's and 12 DC-3's. A month after delivery of the first Connie in September, 1950, the first scheduled operations were started. After that the DC-4's were removed from service as the Constellations were delivered (see chart).

380-Mile Average

Chicago & Southern is a relatively small trunk airline. It operates 30,790 route miles daily. Shortest hop is 165 miles, would take only 49 minutes in a Constellation. Longest haul is 832 miles between Kingston and Caracas with a flying time of three hours and 13 minutes. This route pattern has contributed to C&S's success with the Connie. Initially the average number of miles between stops with the Lockheeds was 390 miles, then, with successive schedule changes and more equipment, 480, 360 and now about 380 miles.

Operating in these ranges the Constellation's gross weight can be made up largely of payload. Thus it is not uncommon for C&S to operate with all 57 passenger seats full, all the cargo the baggage compartments will hold and still have payload available for use of the underslung Speed Pak. Consequently C&S is using three Speed Paks on an extensive scale, six days a week. These are particularly useful on the flights to Venezuela where they permit C&S to carry awkward packages which could not otherwise be handled.

Operating Light

The series of Constellations operated by C&S are approved for gross weights of 98,000 pounds, but due to a maximum landing weight of 89,500 pounds the lighter figure is often used as the take-off maximum gross weight. Actually the Wright R-3350 BD series engines and Hamilton Standard propeller combination are the same units approved in the later Connies for operations at 107,000 pounds gross. This means that the C&S Connies are always operating light with a good margin of performance.

And the use of Ryan jet stacks adds to this performance. Lockheed guarantees that the use of jet-type engine exhaust stacks will add 13 miles per hour to flight speeds at 20,000 feet cruising altitude. In practice C&S has found this to be conservative, with 17 mph actually being added. This additional speed has enabled the airline to cut back cruising engine horsepower to 52%

of METO power or 1100 horsepower. Contrasted with the authorized cruising at 1400 horsepower for the R-3350, this lower figure insures greater reliability and longer engine life.

Another important factor: Even if C&S takes off late it is unlikely to arrive late. Pilots can use additional power to make up time as required.

One Engine Failure

In obtaining a favorable initial overhaul period for its Wright R-3350 engines, Chicago and Southern probably set some kind of a record. Starting with an approved overhaul period of 1100 hours, C&S soon moved to 1200 hours and is now operating three engines on service test for approval of a 1300 hour period. The operating record, showing only one engine failure in scheduled operation and that one more than 30,000 engine operating hours ago, substantiates the move.

Complete tooling, equipment and facilities for setting up its own overhaul line for the R-3350 cost C&S about \$66,000. Another \$139,578 in engine stock plus \$247,242 in 12 spare engines and 10 nacelles was also involved. With this equipment the airline has overhauled 10 engines so far and now has an overhaul rate of 1½ R-3350's per week, about the same as the G-202 engine rate.

Overhaul of the first bare engine ran 1016 manhours with the sixth engine cut down to 788 manhours. Total manhours, including engine, propeller, nacelle work, accessories, etc., was also cut appreciably, from 2,958 manhours for the first overhaul to 1,785 hours for the sixth.

Close scheduling to make maximum use of the six Constellations has resulted

in high daily utilization times. In the first six months of operation all of the planes on hand were scheduled with no spare equipment. Despite this, and reflecting the degree of reliability attained, daily utilization ran seven hours and 18 minutes during the first schedule period, 10 hours 39 minutes during the second and eight hours 54 minutes during the third.

To keep maintenance demands to a minimum, C&S has had a rigid program aimed at getting the full authorized operating time between inspections and overhauls. The degree of success in this program is indicated by the fact that during the first six months of this year the percentage of authorized time between inspections actually utilized ran from 99.30 to 99.94. Any time an inspection or overhaul has to be pulled more than 5 hours ahead of authorized time special approval is required.

Troubles

The operation has not been trouble-free by any means. The rate of heater fuel pump failures has been so high that C&S has turned to service testing a pair of Bendix automotive type pumps in place of the original Adel pump. A system design shortcoming in the hydraulic system resulted in excessive hydraulic pump failures and required a modification program. The jet stacks were added after receipt of the airplanes, additional static discharge wicks had to be added, the prop feathering electrical control system malfunctioned frequently and called for installation of a new type control relay, etc.

Despite this, steady improvements in the time required for aircraft inspection has been achieved while at the

same time cutting the elapsed time required for each check (see chart).

Inspection Times

	January 1951		June 1951	
	Man-hours	Elapsed Time	Man-hours	Elapsed Time
No. 3 Check	353	18	325	12
No. 4 Check	475	24	425	14
No. 5 Check	800	120	700	72
Engine Change	72	18	40	8

It is evident from this record that not only are the aircraft and engines performing well but that the extensive training program on C&S's part is paying off. In all, C&S maintenance personnel logged more than 21,000 hours training time on the Lockheed Constellations. This included sending 51 supervisors and mechanics to Lockheed, another 10 to Wright Aeronautical and five to Hamilton Standard.

In training 60 pilots and co-pilots and 30 flight engineers well over 400 hours flight training was conducted on the Connies. More than half of C&S's 155 active pilots have been checked out in the Constellations. The flight engineers are senior maintenance men who bid on the jobs and C&S is well satisfied with these new crew members.

The extensive nature of this training program, which was paid for out of current operating funds, plus high depreciation costs, enter prominently into the accompanying chart showing the financial side of the Constellation operation. It might be noted that the depreciation is based on writing off \$6,700,000 in Constellation cost during the next five years.

PEOPLE IN THE NEWS

Dan A. Kimball was chosen to become Secretary of the Navy upon the resignation of Francis P. Matthews to become Ambassador to Ireland. Kimball headed Aerojet Engineering Corp. before going into government service. He has been Under Secretary of the Navy.

Robert S. Burgess, director of air service for the Post Office Dept., is reported showing some improvement since suffering a cerebral hemorrhage in Nashville last month.

Warren Lee Pierson, chairman of the board of TWA, has accepted an appointment as U. S. representative on the Tripartite Commission on German Debts, with the personal rank of Ambassador. He will continue to hold his airline position.

Clay P. Bedford, executive v.p. and west coast rep. of the Kaiser-Frazer Corp., appointed an assistant to Defense Mobilizer Charles E. Wilson.

F. H. (Pat) Cummings is now general manager of Air Express Div. of Railway Express Agency. He has been associated with air express since 1921.

C&S Constellation Costs

Cents Per Plane Mile

	4th Quarter 1950	1st Quarter 1951	Month of April 1951
Flying and direct maintenance	87.26c	75.55c	78.34c
Depreciation of flight equipment	37.08	29.91	30.22
Total direct operating expenses	124.34c	105.46c	108.56c
Total indirect operating expenses	117.34	124.28	123.37
Total operating expenses	241.68c	229.74c	231.93c
Passenger revenue	181.18c	197.46c	236.38c
Express, freight and excess baggage	13.66	9.96	9.88
Total non-mail revenue	194.84c	207.42c	246.26c
Profit or (loss) before mail pay	(46.84c)	(22.32c)	14.33c

STEADY IMPROVEMENT in the end results of Chicago and Southern Air Lines' Constellation operation is shown in this chart of direct and indirect operating costs during the last quarter of 1950 and the early part of this year. The high initial loss per plane mile is largely due to immediate write-off of initial training expense and depreciation. Also note the substantial increase in passenger revenue over this period.

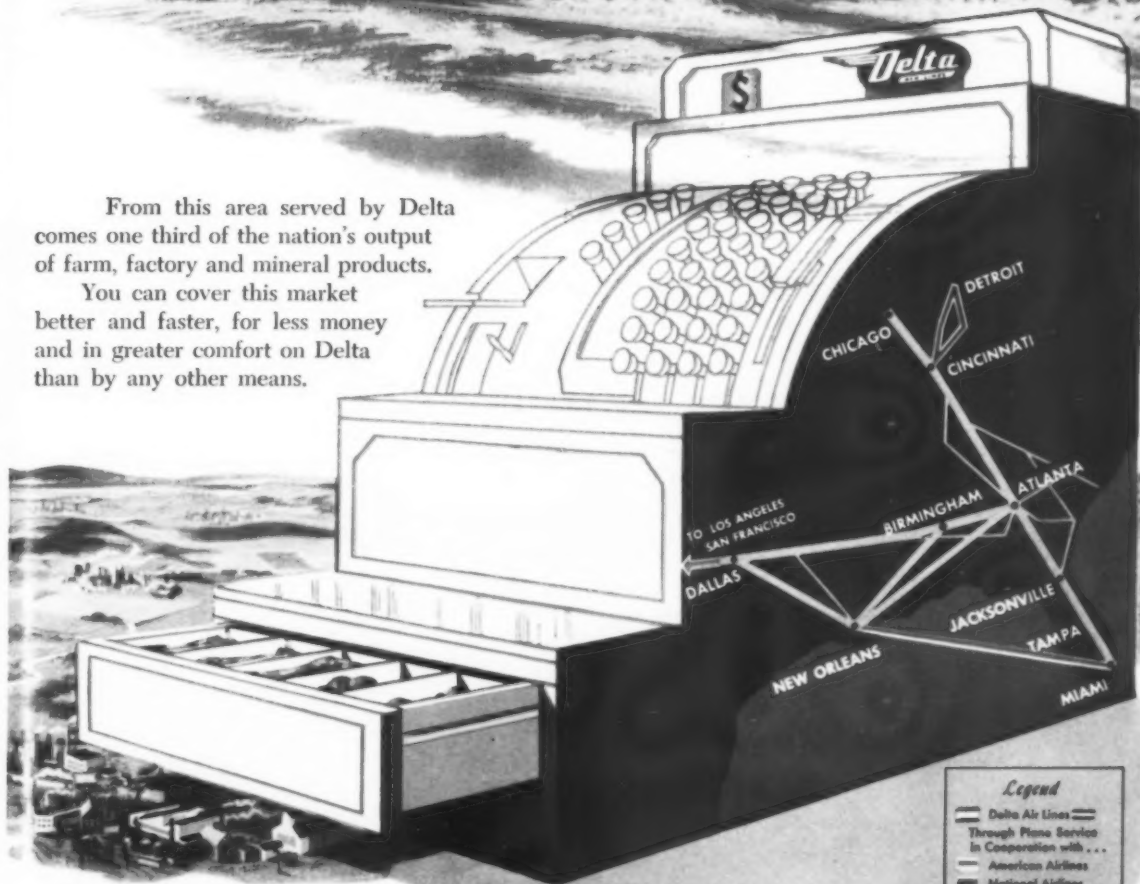


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Hertz maintains airport stations in these key cities

Long Beach, Calif.	Rochester, N. Y.
Palm Springs, Calif.	Syracuse, N. Y.
San Jose, Calif.	Durham, N. C.
Hartford, Conn.	Greensboro, N. C.
St. Petersburg, Fla.	Raleigh, N. C.
(Pinellas Airport)	Canton, O.
Tampa, Fla.	Cincinnati, O.
Atlanta, Ga.	Cleveland, O.
Carbondale, Ill.	Dayton, O.
Chicago, Ill.	Toledo, O.
Murphysboro, Ill.	Oklahoma City, Okla.
Rockford, Ill.	Portland, Ore.
Evansville, Ind.	Pittsburgh, Pa.
South Bend, Ind.	Scranton, Pa.
Louisville, Ky.	Sharon, Pa.
Houlton, Me.	Wilkes-Barre, Pa.
Baltimore, Md.	Providence, R. I.
Bedford, Mass.	Greenville, S. C.
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Bay City, Mich.	Nashville, Tenn.
Midland, Mich.	Midland, Tex.
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Whitefish, Mont.	Richmond, Va.
Las Vegas, Nev.	Yakima, Wash.
Newark, N. J.	Madison, Wis.
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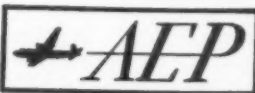
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London Letter

By Richard G. Worcester



THE Vickers 660 jet bomber with four Avons must be one of the smoothest shapes yet evolved. The Prime Minister said that an order for four-jet bombers had been placed in January. The expected speed is "twice that of a Lincoln" or about 630 m.p.h., which means that it may be as fast as Boeing's B-47. Since the Sapphire jet is still in the development stage, all efforts are being concentrated on the Rolls-Royce Avon which is now slated not only for the 660, but also for the later Comets, the Canberras and doubtless the "rival" jet bomber to the 660 which the British press mentioned would soon fly. So far there is no country licensed for the Avon except Australia who wants it for its Canberra production. The 7,000-lb. thrust Avon, however, should eventually be exported on some quantity; most European nations seem to be in need of an engine of equivalent power.

The prospect of the U. S. spending millions of dollars developing a Local Service liner similar to the Marathon, which is in production in the U. K., has caused quite a stir in Britain. This aircraft, a 20-place transport with four Gipsy Queens similar to those in the Dove, is designed to climb quickly out of small fields—hence its initial application to British European Airways' Scottish air strips. Seven of these transports in BEA's "Clansmen" class will be delivered early next year. An eventual U. S. tour of the Marathon can be confidently expected.

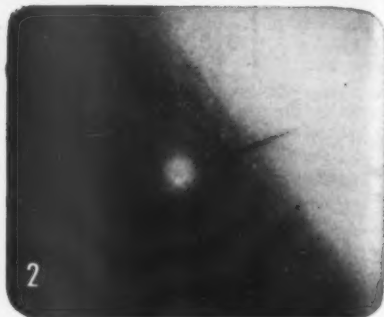
When folks in London get together they sometimes discuss the way British ideas get snapped up in the U. S. and developed out of all recognition. It is never quite clear whether they think it is wicked of the Americans to seize these ideas with such indecent haste, or whether it is wicked of Britain not to see the implications of its own ideas. Anyway, as was first revealed to the world a few weeks ago, the Americans have done it again. This time it is the optical reference line (optics-casting) tool fabrication system. Manufacturers over here admit that Britain is not using this idea on anything like the same scale. One company, Fairey Aviation, says it applies mainly to large aircraft, but this does not line up with the fact that Lockheed is using it on the F-94D.

In addition to the Canadair F-86E interceptors to be supplied to the R.A.F. from Canada the British are now to have numbers of the new Supermarine Swift. The Swift is based on the Supermarine 535 which has the same approximate dimensions as the F-86. Doubtless it will have as much or more thrust. If it has any more thrust than the F-86 the Swift will be in the 700 mph class and rank level with the best fighters anywhere. The future of the Hawker P.1081 is uncertain; it might for instance be developed as an export. The difference in performance between these two British designs is only marginal and the Hawker would be a valuable addition to the strength of NATO countries.

There is a steady trickle of DC-3s returning from Britain to the U. S. where, we understand, they are fetching up to \$30,000 clear profit. This is an indication of the unhealthy situation of the non-skeds who have been all but legislated out of existence. Many were pinning their hopes on the air-trooping scheme under which the government will use charter firms to bring back military personnel from the Middle East garrisons. But there has been an odd development. BOAC's purchase of new equipment had thrown up a surplus fleet of 23 York 4-engine transports by European standards, a very considerable group of aircraft. Various charter companies who tried to buy them were told they were not for sale, but, then, suddenly, all 23 were sold for an absurdly small price each (less than half the current value of a DC-3!) to one charter company, Lancashire Aircraft Corp. That is all the information available at the moment but it is certainly not the end of the story.



Death of a MIG-15. These photos taken from the gun camera of a USAF Sabrejet, F-86, show hits registered along the left wing of a MIG-15 during a recent air battle over Korea.



“GIG” “MIG” HOW A GIG HELPED GET A MIG

When a Red plane digs a hole in the Korean landscape, it's a victory for the ground crew, too — the men who kept the pilot flying.

The “GIG” is the ground crew's pet nickname for the machine they use to test hydraulic systems and controls of jets before they ever leave the ground. Its full name is the model PE3C-10V Test Machine, and it is one of many indispensable pieces of test equipment made by Greer.

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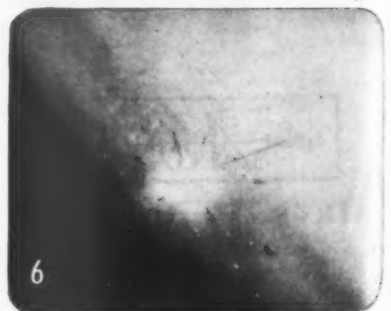
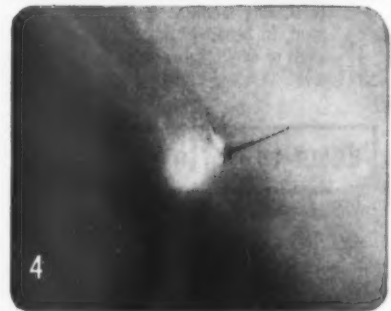
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Dept. of Defense Photos (U.S. Air Force) from INP

Production Spotlight

Settlement of Suit: *Look for early settlement out of court of suit brought against Canadair Ltd., Montreal, by Douglas Aircraft Co., over DC-4 licensing.*

Colorless JATO: A colorless JATO fuel is needed. In Korea on calm days, the JATO exhaust lingered on runways, reduced visibility.

Skills from Europe: *Some types of skilled workers are so short that Canadair Ltd. has sent recruiting scouts to Europe and is picking up good men in England, Netherlands, and Germany. Canadair, in the meantime, has been raided by U. S. companies.*

Commercial Maintenance: Pacific Airmotive Corp. has created a new division at its Burbank, Calif., plant to handle overhaul and maintenance of commercial aircraft, separating this work from its large volume of military business.

Sapphire Parts: *General Motors Corp.'s Brown-Lipe-Chapin Division will build a 400,000 square foot plant on a 100-acre tract near Syracuse, N. Y., to handle manufacture of parts for the Wright J-65 Sapphire jet engine under subcontract from GMC's Buick Motor Division. The division will also process and assemble J-65 compressor stator blade assemblies and turbine stator blades at two other plants.*

Martin Backlog: The Glenn L. Martin Co. will spend \$88,000,000 with other companies this year, an increase of 112% over last year. Martin has a total of 3,865 subcontractors and suppliers, located chiefly in the Atlantic seaboard states to minimize shipping problems.

Of the total, about \$52,000,000 will go to subcontractors. This is more than 10 times as much subcontract business as the company doled out last year. About two thirds of all Martin purchases will be made from small businesses, by definition those with fewer than 500 employees.

Martin's backlog is now \$400,000,000, up from \$71,655,000 on January 1, 1950 and \$162,000,000 as recently as last October. Major portion of the backlog is in USAF orders for B-57A Canberra night intruder bombers, about 60% of which will be built by subcontractors. Other Martin contracts include Navy orders for P5M-1 anti-submarine seaplanes and commercial orders for 4-0-4 twin-engined transports.

Northrop Stock: *Northrop Aircraft, Inc., has filed a statement with Securities and Exchange Commission seeking registration of 125,000 shares of its \$1 par value common stock. Proceeds of the sale will be used to provide additional working capital, although none of the new money will be applied to new construction at the company's Hawthorne, Calif., plant, for which \$2,100,000 has been allocated. Of the estimated cost, \$1,500,000 will be borrowed from Reconstruction Finance Corp. and the remainder will come from the company's own funds.*

Bendix Plants: Bendix Aviation Corp. has purchased two new plants and established two new manufacturing divisions. The company bought the South Montrose Manufacturing Co., South Montrose, Pa., and established what will be called the Montrose Division. The Montrose plant has 102,000 square feet of floor space and will employ 700 workers. Bendix also bought the Utica, N. Y., plant of Continental Can Co., which has 220,000 square feet and will employ 2,000. It will be known as the Utica Division. This will make a total of four new divisions created by Bendix since the start of the Korean war.

Furniture to Fuselages: *General Fireproofing Co., metal office furniture manufacturer, has come into the defense production program with a multi-million dollar subcontract from Republic Aviation Corp. to make fuselages and tail assemblies for F-84 jet fighters. The company has started converting its Youngstown, O., plant to aircraft work.*

INDUSTRY PERSONNEL

Max G. Burland has been named manager of industrial relations at Consolidated Vultee Aircraft Corp.'s Fort Worth plant, replacing R. J. Donnelly, resigned.



Burland

... Parker Appliance Co. has picked Charles E. Cleminshaw area manufacturing manager on the West Coast while Harvey E. Schroeder will head Parker's fitting plant and R. J. Trivison will be in charge of the valve division at Los Angeles. Rheem Manufacturing Co.'s Aircraft Division has selected W. R. Miller manager of the new Downey, Calif., plant. Succeeding him as executive assistant to the general manager is W. T. Gibbs. Leo G. Sands was named director of public relations and advertising for Bendix Radio Division, Bendix Aviation Corp. Edwin D. Eaton has been selected chief of experimental operations and Herbert N. Reitz was picked assistant to the chief engineer for United Aircraft Corp.'s Hamilton Standard Division.

Sundstrand Machine Tool Co. has chosen Thomas N. McGowen chairman of its executive committee.

Resistoflex Corp., Belleville, N. J., elected Ralph R. Layte and William B. Paul to its board of directors.

R. R. LaMotte, chief engineer of the Aeroproducts Division, General Motors Corp., has been elected an associate fellow of the Institute of the Aeronautical Sciences. Samuel A. Angotti has resigned as Fairchild Aircraft Division's Director of Industrial Relations to become assistant secretary for Landis Tool Co., Waynesboro, Pa.



LaMotte

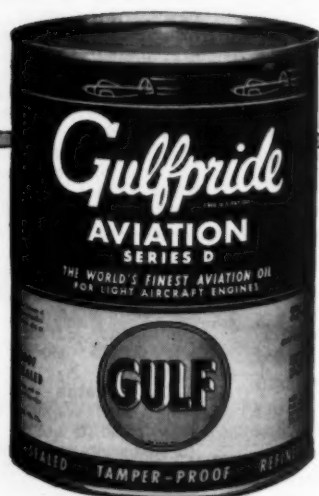
R. C. Taylor has been elected to the Republic Aviation Corp. board of directors. Pacific Airmotive Corp. has picked Luther Harris as vice president—production. Robert M. Robbins has been named project engineer on Boeing Airplane Co.'s B-47C Stratojet. R. Allen Price selected manager of Aircraft Division, Parsons Corp., Traverse City, Mich.

Chance Vought Division, United Aircraft Corp., has chosen John J. Hospers assistant to the general manager and selected Paul Thayer to replace him as sales manager. Chester Keasling has been appointed head of a newly created Pacific Airmotive Corp. division for overhaul and maintenance of private and commercial craft. Kenneth MacGrath elected to Lear, Inc., board of directors. William S. Renier chosen director of engineering for Hydraulic Press Manufacturing Co.



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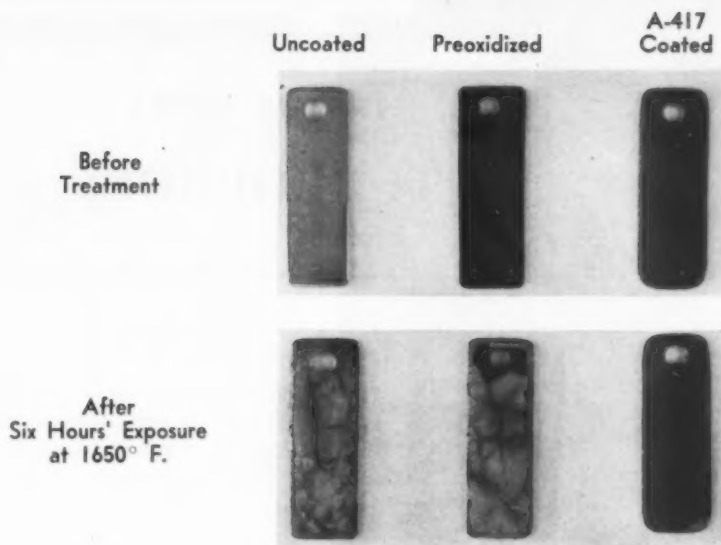
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PROTECTIVE VALUE of ceramic coating as well as the corrosive effects of high-temperature lead bromide fumes on uncoated metal are graphically shown in these before-and-after photos of Type 347 stainless steel samples.

How to Cut Wear on Engine Parts

New tests with ceramic coating reduce corrosion of jet blades, exhaust systems.

ONE of the more promising developments in the engine field in recent months has been service testing and laboratory experimentation with ceramic-coated heat-resistant alloys such as those used in piston engine exhaust systems and many parts of turbine engines. Both the National Advisory Committee for Aeronautics and the airlines have been making headway with tests along these lines.

NACA's work was carried on by the National Bureau of Standards and involved the laboratory testing of a group of five heat-resistant alloys with and without ceramic coats when exposed to lead bromide, a by-product of combustion-type engines. The airline work has consisted of service testing of ceramic-coated engine exhaust systems on a limited scale.

Both Pan American and Eastern Air Lines have used ceramic-coated exhaust components with reasonable success in cutting down the corrosion and consequent failures resulting from lead bromide in exhaust gas mixtures. EAL experimented with stacks ceramic-coated by Stewart Warner. Pan American's Pacific Division has accumulated several hundred hours' time on a set of ceramic-coated stacks on the Pratt & Whitney R-4360. The R-4360 stacks were coated by Ryan.

Service experience has been quite

favorable. Initial cost, EAL estimated, would run about 10-15% higher than conventional stacks. They have presented no particular repair problems but can be recoated if chipping occurs. Corrosion has definitely been reduced.

At the Bureau of Standards, under the direction of W. N. Harrison, NACA funds were used to duplicate certain conditions existing in the exhaust gas systems to determine the part played by lead bromide in this type corrosion. There have been many reports crediting other exhaust gas chemicals with this type of corrosion.

In the manufacture of high-test aviation fuel, tetraethyl lead is added to provide anti-knock characteristics and thus raise its octane rating. Since lead would tend to accumulate on the pistons, cylinder walls, valves, rings and other components, this must be guarded against. Ethylene dibromide is used to minimize this condition.

Remains in Exhaust

At the high temperature of the exhaust gases the ethylene dibromide joins with tetraethyl lead to form lead bromide. This is gaseous at these elevated temperatures and passes out the exhaust system. The small fraction remaining in the exhaust system or contacting it enroute overboard causes the trouble.

NBS work proved that lead bromide is a major factor in corroding these heat-resistant alloys and that, in every case tested, ceramic coatings prevented or appreciably minimized the attack.

Five common metals used in exhaust systems and in turbine engine blades were tested:

- Inconel
- 347
- 19-19DL
- Vitallium
- S-816

The first three metal alloys are widely used in exhaust systems, the latter two in turbine blades. Thirty specimens were prepared each consisting of an 18-gauge strip 1½ inches long by ½ inch wide. Each type of metal was tested uncoated, preoxidized, and with one of three ceramic coatings. The ceramic coatings were NBS types A-417, A-19 and A-520. Coatings were applied by dipping and bonded by heat with tests showing coating thickness of .0017, .0042 and .0012 respectively.

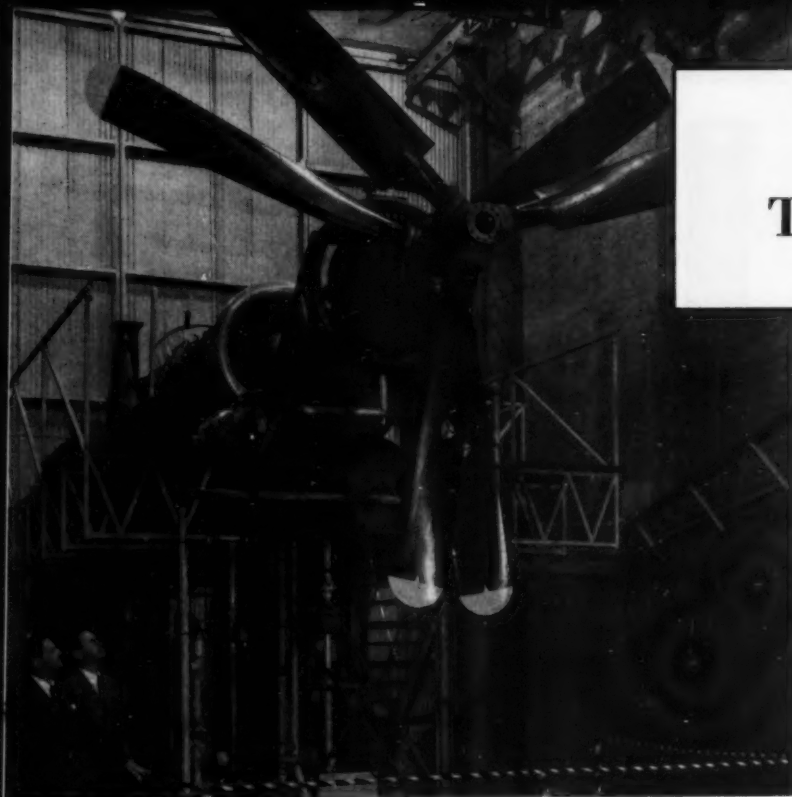
Special Oven

A special oven was prepared and each specimen was exposed to lead bromide fumes for six hours at 1350 degrees Fahrenheit, 1500 degrees and 1650 degrees. After the oven was brought up to temperature, complete sets were installed in the oven suspended from a loose-fitting cover. As each specimen was installed a single gram of chemically pure lead bromide was added, making sure it did not strike the samples in liquid form.

Each hour the samples were removed, cleaned with a light sandblasting and examined. When reinstalled another gram of lead bromide was added. There appeared to be no relationship between the degree of corrosion experienced and the temperature at which the test was run. In several instances there appeared to be less corrosion at the higher temperatures but this might be accounted for by the fact that the lead bromide vaporized and escaped at a faster rate.

Loss of thickness in individual specimens varied from 1.2 mils to 10.1 mils. It was noted that this was primarily due to the different types of alloys. Uncoated specimens of S-816, H.S.21 and Inconel were more resistant than the two stainless steels, types 347 and 19-19DL.

Most impressive example was that of Inconel. Uncoated Inconel lost 160 milligrams during the test while Inconel coated with 417 ceramic showed no significant loss. In the case of 347 and 19-19DL, both stainless steels, lead bromide caused a selective attack of an intergranular nature, leaving a spongy layer near the surface.



IN THE NEWS TURBOPROPS

The Turbodyne, most powerful propeller-type aircraft powerplant in the country, delivers more than 8000 horsepower in addition to an undisclosed amount of thrust. Here, Jim LaPierre, manager of G-E's Aircraft Gas Turbine Divisions, and Virg Weaver, in charge of the Turbodyne project, take a look at the engine on the stand where it is undergoing rigorous tests.

Ten years ago, in July, 1941, G-E engineers started work on a new type aircraft powerplant—an axial-flow gas turbine driving a propeller. This was the TG-100, the first turboprop in the country and the forerunner of future powerful engines.

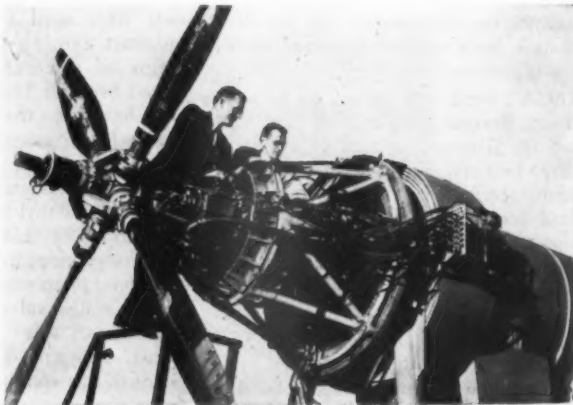
General Electric engineers today are experimenting with the Turbodyne, a Northrop development. Although larger than required for today's transport needs, the Turbodyne presents an ideal vehicle for testing new ideas and methods.

New and improved turboprop engines are in the books at General Electric. Light weight and high powered, these engines will someday be lifting new aircraft to new uses and new records.

When you're considering powerplants, call in the company that pioneered the aircraft gas turbine industry. Telephone your General Electric aviation specialist, or write General Electric Company, Schenectady 5, N. Y.



Convair XP-81, first turboprop-powered aircraft to fly in U.S., powered by TG-100, first American turboprop.



Design engineers Alan Howard and C. J. Walker, inspect an early TG-100 turboprop on test stand in Schenectady.

AIRCRAFT GAS TURBINES

GENERAL  **ELECTRIC**

210-22



SERVICE TESTS are now under way at United Air Lines on a Douglas DC-6 using a high-intensity rotating red light mounted on the tip of the vertical stabilizer as a navigation light. Unit consists of a 75-watt sealed-beam lamp of about 15,000 beam candlepower. Two reflectors, suspended over the lamp and revolved by a motor at 60 r.p.m. cast fan-shaped beams 180 degrees apart in the horizontal plane. Viewed from above or below at a distance the light flashes every second but from the same altitude impulses come at a rate of two each second. UAL expects to test this three-pound unit on three more DC-6's, DC-4's and DC-3's.



HARDMAN SEATS shown here have been selected by four foreign airlines and one business firm for installation in their newly-ordered Douglas DC-6B's. Swiss-air KLM Royal Dutch Airlines, Scandinavian Airlines System, Philippine Air Lines, and Aramco will use them in DC-6's, and KLM will also use them in Lockheed 1049 Constellations. Seats feature track mounting provisions for varying spacing, 70-degree recline with limit stops for day spacing, airfoam cushioning, and stressing for loads up to 9G's. Manufactured by Hardman Tool & Engineering Co., West Los Angeles, Calif.

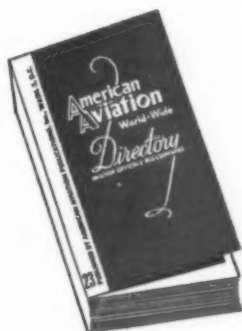
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New DC-6 Jump Seat For Flight Engineer

A new-type DC-6 jump seat to fulfill the dual purpose of making life somewhat more comfortable for the flight engineer and keeping the passageway to the cockpit in the clear is being developed by Burns Aero Seat Co. in Burbank, Calif.

The seat folds out of the cockpit door, moves back and forth and raises up and down, but still will take a 9 G load.

The new jump seat, which is described as providing maximum working efficiency for flight engineers under all conditions of flight, features:

- 360 degrees full swivel with 46-degree stops. Adjustable fore and aft, it reclines mechanically.

- Detachable, folding arm-rests as well as airfoam cushioning.

- All-steel construction.

The DC-6 flight engineer station has been something of a problem because the airplane was designed for operation by a two-man cockpit crew.

It was not until the CAB ordered third crew members in the DC-6's that it became necessary to think about designing a jump-type that would not only leave sufficient aisle space for pilot and co-pilot but also provide reasonable comfort for the flight engineer.



WHEREVER YOU
GO
WHATEVER YOU
FLY

ARC EQUIPMENT

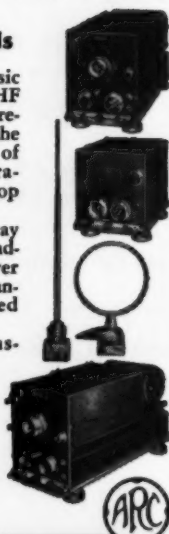
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ARC Type 11A meets basic needs by providing VHF transmission, LF range reception suitable for the exacting requirements of night instrument operation, and rotatable loop navigation.

ARC Type 17 is 2-way VHF equipment, including tunable VHF receiver and one or more 5-channel, crystal controlled VHF transmitters.

ARC Type 12 (illustrated) gives you advantages of both Type 11A and Type 17 systems.

All ARC airborne equipment is designed for reliability and performance, not to meet a price.



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Extra Section

By William D. Perreault



ONE OF the major airlines employed a psychologist to survey pilot personnel and see if there was a practical method of singling out pilots who might be naturally accident-prone. Without reference to past operating records of the pilots, this psychologist developed a test which indicated that about 25% of the group were accident-prone in varying degrees. Then, checking this list against the individual pilot records, he discovered that this 25% had in fact accounted for 75% of the accidents on record. This psychologist claims that such tests are applicable to any field and notes that in Connecticut automobile drivers involved in repeated accidents are tested in this manner. In some cases these drivers lose their licenses.

Normally we think of the airline mechanic as a man who deals in aircraft or engine overhaul, electronic equipment maintenance, etc. Actually, every airline has a number of master carpenters who are listed in the mechanic category. Braniff Airways has such a man—T. J. (Dad) Allen. Dad, who is 78 years old, is probably the oldest airline mechanic in the industry. President T. E. Braniff recently presented Allen with \$1,000 upon his retirement after 17 years with the company. We can merely add our best wishes for a happy retirement.

At Chicago & Southern Air Lines the training department has just fallen heir to a full-fledged pulpit from which to conduct their classes. It happened this way: when Billy Graham, the famed evangelist, arrived in Memphis recently for a series of appearances, C&S made a special flight during which Graham gave one of his talks to a group of Memphis businessmen during a local flight. The talk was also broadcast over the local radio stations from the C&S Connie, which had been specially rigged for this program including provisioning with the made-to-order pulpit. When the flight was over the pulpit was put to work in the training department.

The DC-3 operators going to combustion-type heaters may be interested in Chicago & Southern's experience with this type heater. Initially C&S started with a 100,000 British Thermal Unit output heater. This didn't prove adequate and now they've gone to a 200,000 unit heater which has been cut down to about 125,000 BTU's by controlling the fuel supply. This has worked in good fashion.

C&S also has an interesting operation in the communications department. Feeling at Memphis, and we believe it's correct, is that they operate the longest route with dispatch control centralized at one point. This is the 2100-mile run between Caracas, Venezuela and New Orleans—with radio-telephone communications over the entire route. Communications are handled through Arinc's New Orleans station by direct wire from Memphis but from 2500 miles away, Memphis can hear all communications directly, even when the planes are on the ground in Caracas. Unlike the long over-water operations in the Pacific, there is no ground station at the destination point in Caracas.

Every business firm has the problem. Telephone bills run too high. Some of this cost can be attributed to personal calls but a much greater amount to phone calls that could be handled by letter. At C&S we noted an oversize baggage type bag hanging off the face of the dial. It read: "Wait. Can this call be handled by letter or teletype?" V. P. Bill Arthur says it's fairly effective and is but one of series which must be changed several times a year to keep the idea prominent in everyone's mind.



Next—COMPLETELY Automatic Flight!

That's the exciting possibility that will open up for the future after a B-50 crew tests Honeywell's new Automatic Master Sequence Selector.

This device, being researched and developed by Honeywell engineers and the All Weather Flying Division of the Air Materiel Command, is designed to make flying easier. Plans are to guide the Boeing Superfortress automatically—from take-off to landing—over any preselected course.

Holes punched in a roll of tape will dictate the complete flight plan. This roll of tape—something like a player piano roll—will "mastermind" the Selector.

For civilian and military aircraft, this latest

product of Honeywell research and ingenuity may well mean greater utilization of aircraft—through elimination of human error. Each day this becomes more and more important—as instrument panels and air traffic problems grow more complicated.

Development of the Automatic Master Sequence Selector represents just one of the many aircraft control problems being researched and solved by Honeywell engineers. We expect to be given many others in the years to come—because *automatic control* is such an important part of aviation progress. And *automatic control* is Honeywell's business.

AERONAUTICAL DIVISION

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Honeywell

Aeronautical Controls

GENERATOR CONTROL SYSTEMS: An eight-page, illustrated report on "28-Volt Generator Control Systems" is available from General Electric, Schenectady 5, N. Y. Covers over-voltage, ground fault, reverse current and undervoltage.

AIRCRAFT TRANSFORMERS: A 28 page, illustrated bulletin on transformers for aircraft applications, including ignition transformers, fluorescent lamp ballasts, phase changing transformers, etc., is available from General Electric, Schenectady 5, N. Y.

BURNDY LIMITERS: A comprehensive presentation of operation and design data on Burndy Limiters for aircraft electrical systems, is available from Burndy Engineering Co., Inc. in Technical Bulletin 51F2, an eight-page bulletin now being circulated. Includes mountings, ratings, wire sizes, time-current characteristics, etc. Burndy Engineering Co., Inc., New York 54, N. Y.

CLEANERS, STRIPPERS: Complete data on the E. F. Drew & Co., Inc. line of carbon and parts cleaners, corrosion preventives, cresol emulsion cleaners, paint strippers, etc. is included in a folder of technical data now available from The Aviation Products Dept., E. F. Drew & Co., Inc., New York 10, N. Y.

SHOCK RESISTANCE: "Designing for Shock Resistance" is the title of a 15-page reprint now being circulated by The Barry Corp., 700-C Pleasant St., Watertown, 72, Mass. Discusses influence of weight, energy storage, stress concentration, etc.

PLASTICS GUIDE: A handy table which correlates all systems of grade specifications drawn up by industry and government to cover selection of laminated plastic sheets, tubes and rods has been compiled by Synthane Corp., Oaks, Pa. Available without charge.

HELICAL INSERTS: Design, application and installation data on helical-wire thread inserts for protection of tapped threads in aluminum, magnesium, plastics, etc., is provided in a new 16-page bulletin now available from Heli-Coil Corp., 47-23 35th St., Long Island City 1, New York.

INSTRUMENT TOOLS: A comprehensive catalog listing of aircraft instrument maintenance and overhaul equipment has been published by Ideal Laboratory Tool & Supply Co., 3619 Evans Ave., Cheyenne, Wyoming. Includes price list.

METAL SPINNING: A reference catalog, 40 pages devoted to information on past experience and future potential of metal spinning and fabricating as applied to many fields, is available from Spincraft, Inc., 4122 West State St., Milwaukee 8, Wisc.

AVIATION PUMPS: Information on a series of pumps for use in hydraulic and fuel systems and in degreaser applications plus pressurization unit information is provided in a 4-page pamphlet now being circulated by Eastern Industries, Inc., Newton, Massachusetts.

• A new wind velocity recorder providing both instantaneous indication and a strip chart record of wind velocities between zero and 200 miles an hour has been devised by the Hastings Instrument Co., Hampton, Va. It comes equipped with either a directional or a horizontal non-directional probe, the probes being of the thermopile type and having no moving parts. They are also temperature compensated to eliminate effects of temperature and rate of change of temperature.

• Pushbuttons for fire and turret control, communication circuits, signal systems and remote control of relays, solenoids and motors are again being made for aircraft manufacturers by the Square D Co., Detroit. These pushbuttons are said to have vibration resistance at frequencies up to 55 cycles per second, with a total extrusion of 1/16 inch without contact arcing. Moreover, it is claimed, acceleration up to 10 G's will not cause malfunctioning in any position, while full rating at 15 ampere inductive load at 30 volts D-C is possible at 40,000 feet. The pushbuttons allegedly will operate satisfactorily at temperatures from -65 to 160 degrees Fahrenheit.

• An A. V. Roe Canada Ltd. engineer, J. C. Clemenson, has devised a fault analyzer for indicating and locating faults in the A-C electrical system of the Avro Jetliner. It incorporates a bank of warning lights or indicators which are mounted on the control panel. These are actuated by electromagnetic relays which are connected in such a way that they not only indicate any fault due to over-voltage, voltage failure or overload but also show the section where the fault occurred.

• Between last August 4, the time California Eastern Airways put its planes into the airlift to Tokyo, and May 31 of this year, the planes have averaged 13 hours and 31 minutes of utilization each day. CEA board chairman Andre de Saint-Phalle says he believes this utilization figure is a new airline record.

• A rubber dummy named Elmer is helping the Civil Aeronautics Administration and the Air Force test various devices designed to improve safety in air travel. Designed by John J. Swearingen of the CAA Medical Research Laboratory at Oklahoma City, Elmer was first sent to Beech Aircraft Corp. at Wichita for design of better shoulder harnesses for pilots. He soon will be used for deceleration studies at the USAF's base at Muroc, Calif., and later will be assigned back to Oklahoma City to check body behavior under certain aircraft operation and accident conditions. Elmer is nearly human in his compressibility, flexion, center of gravity, muscular construction and natural relaxation.

• The newly established National Bureau of Standards laboratory at Corona, Calif. will be devoted primarily to Defense Department research projects. Dr. R. D. Huntoon, who has been named associate director to head the new labs, says the most important activity there will be the development of guided missiles. Every phase of missile development from basic and applied research to actual fabrication of experimental parts will be carried on. To simplify calculations the Corona lab will contain an analogue computer which will compute trajectories of proposed missiles mathematically. Other facilities at the former Navy installation will include electronic laboratories, machine shops, a wind tunnel, jet engine test cells, altitude chambers, a missile assembly section and a technical library.

• Shortage of pilots is becoming acute in Europe. Both Scandinavian Airlines System and British European Airways are beating the bushes. SAS needs about 80, BEA several hundred.

• A metal alloy that can be used without lubricants in moving machine parts has been developed by Chemalloy Associates, Inc., Santee, Calif. The company claims this rust-proof alloy generates no heat at top lathe speeds, can be pressure die-cast and hold tolerances normally obtainable only by machine shop techniques.

• Intolerable rates of rotation and severe buffeting of pilot seats following ejection from high, fast flying aircraft has caused the U. S. Air Force to change ejection procedures. Pilot will not be separated from the ejection chair as soon as possible after he leaves the cockpit and will free fall to a point where his automatic parachute opens. This required transferring oxygen supply from the chair to the pilot's person.



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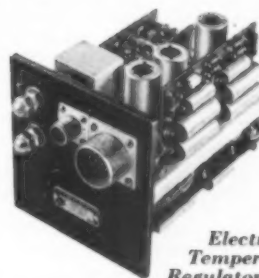
Electronic Pressure Controls. For cabin altitude and rate of change control.

Electronic Positioning Controls. (Remote and fail-safe) for throttles and controls.

Electronic Analogue Computers. For fire control of guns and rockets, for missile guidance, for jet engine horsepower control.

Electronic Synchronizing Controls. For throttles and trim tabs, etc.

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NEW PRODUCTS



Fire Protection

A pallet-model Porto pumper which can readily be mounted on a standard truck body is being marketed by Porto Pump Inc. The Porto Pump unit consists of a 200-gallon water tank, hose rack with 600-foot hose capacity (1½-inch size), a demountable gasoline powered rotary pump, supply hose, aluminum extension ladder, 200 feet of fire hose, fire axe, hand extinguisher, straight stream nozzle, combination fog and straight stream nozzle. The positive displacement rotary pump features rubber gears making it possible to use either dirty or clean water. The entire pumping unit can be readily demounted and carried to the water source—hydrant, well, ditch, pond, etc.

Address: Porto Pump, Inc., 227 Iron St., Detroit 7, Mich.

Metal Grippers

A new type of gripper used to position sheet metal parts prior to riveting has been announced by Aviation Developments, Inc. The AVDEL clamp is a self-contained unit which is ready for use without any other tools. Gripping action of the AVDEL Grippers draws sheets together, assuring better alignment and improved riveting, eliminating tendency of rivet shanks to swell between sheets. Surface area at contact points is large and smooth; extra grip length of shank permits several sheets to be held together at one time. Available for 3/32, 1/8, 5/32 and 3/16-inch holes.

Address: Aviation Developments, Inc., 210 North Front St., Burbank, Calif.

Conveyor

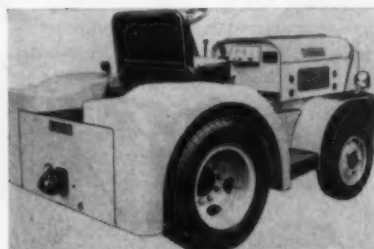
A light-capacity, power-driven overhead chain conveyor which handles loads up to 30 pounds on pendants spaced at six-inch intervals has been placed on the market by Southern Engineering Co., Inc. Bronze universal joints at three-inch intervals, load wheel mounted at 45 degrees to the load pendant and at 90 degrees from each other plus Oilite bearings all contribute to smooth operation and make possible radii as short as 15 inches. By joining horizontal, vertical top and vertical bottom curves together, any combination of turns is possible. Sixty-pound loads can be handled at 12-inch

intervals by using two support pendants with a cross-bar attachment.

Address: Southern Engineering Co., 249 N. First St., Burbank, Calif.

Tractor

A new 12,000-pound, drawbar-pull, diesel- or gasoline-powered tractor with torque converter has been introduced by The Buda Company. The model HA-120 has a single-stage, closed-circuit type torque converter which eliminates shock by smooth power application when



starting movement of the aircraft. It is normally powered by a six-cylinder, 230-cubic-inch displacement Buda model 6-B-230 gasoline engine but can be supplied with a model 6-BD-230 engine with interchangeable mounting dimensions. Features of the HA-120 include the torque converter, 12,000 pounds drawbar pull (13,000 pounds with wheel weights), four-wheel hydraulic brakes, heavy-duty transmission with four forward and one reverse speed, 17-gallon fuel tank, adjustable seat and dual pneumatic drive tires.

Address: The Buda Co., Harvey, Ill.

Self-Locking Nut

A new triangular-shaped, self-locking retaining nut for use on threaded bolts and shafts has been designed by Wales Kohinoor, Inc. The Truarc series 5300 retaining nut has a drawn helical segment with tapered inner edge that forms a single thread conforming with American Standards. Screwed on a threaded shaft, the dish triangular body flattens under torque and secures an equal load distribution against the part being held. Separate washers are unnecessary. Under spring tension threaded helical segment engages the full depth of the circumference of the screw thread approximately 300 degrees.

Address: Wales Kohinoor, Inc., 47-16 Austel Place, Long Island City 1, N. Y.

Splice Caps

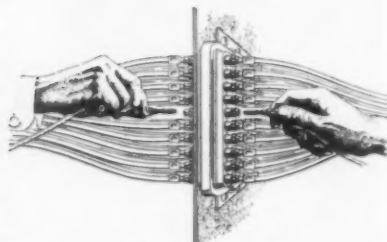
Splice caps of improved design which facilitate installation and inspection are now being manufactured by Buchanan Electrical Products Corp. Featuring open-end construction, the Buchanan

splice caps insure that wire insulation is always flush with the cap for maximum circuit protection. Two sizes cover virtually all frequently used combinations of two or more wires ranging all the way from two Number 18's to three Number 8's. Crimping is accomplished by a one-pound "pres-SURE-tool" which handles both sizes of splice caps and can also be used to install Termend lugs on wire sizes from 16 to 8. This tool provides four-way crimping action equally effective on solid or stranded or combination solid and stranded wires.

Address: Buchanan Electrical Products Corp., Hillside, N. J.

Pressurized Panels

As many as 100 electrical circuits can be handled from either side of a pressurized bulkhead using the new pressurized disconnect panel being manufactured by Burndy Engineering Co.,



Inc. Already in use in major aircraft installations, the Burndy pressurized panel uses silver-plated separable connector pins indented onto the wire leads with installation tools. Pins are then inserted into silver-plated sockets molded in pressure-tight phenolic panels. Pins are secured by means of a spring lock in each socket and each socket features identification numbers molded in on both sides of the panel. Available in standard 26-place round panels, 40-, 53- and 100-place rectangular panels. Thermocouple sockets can also be provided.

Address: Burndy Engineering Co., New York 54, N. Y.

Stamping Ink

A non-corrosive, non-etching stamping ink, developed in the laboratories of a prominent aircraft manufacturer for use on aircraft materials, is being marketed by Organic Products Co. It is suitable for use on aluminum, magnesium and stainless steel in addition to other metals, is resistant to petroleum-type cleaning fluids, oils, greases, chlorinated solvents, etc. Manufacturer claims it is quick drying, has excellent abrasion resistance, is available in red, green, blue and violet and can be easily removed with a special remover. No effect on rubber stamps or stamp pads. Price: \$2.50 per pint, \$4 per quart, \$10 per gallon f.o.b. Irving, Texas.

Address: Organic Products Co., P. O. Box 456, Irving, Texas.



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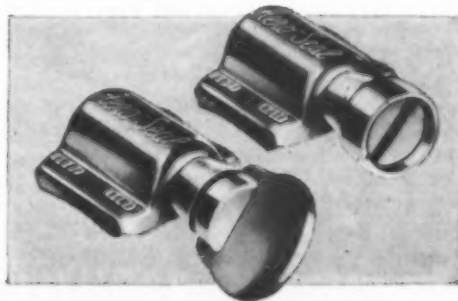
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AERO-SEAL Hose Clamps are available with screwdriver or thumb tab adjustment.

Friday In-Flight Meals: Fish or Meat?

Carriers, in the middle, get complaints from both sides and can't please everybody, survey shows.

By ERIC BRAMLEY

ALL but two of the U. S. domestic airlines are serving fish for Friday in-flight meals, and the U. S. and foreign international operators, will give it to you on request, an AMERICAN AVIATION survey shows.

Serving of fish on airplanes has long been a controversial subject. Many people don't like it, many object to the odor on the airplane, and there's always the chance that the fish served might not be fresh.

The airlines have been in the middle—they're criticized if they serve fish and they're criticized if they don't. It seems evident that were it not for religious practices fish would seldom, if ever, be served. But religion has dictated otherwise.

Some of the airlines don't go all out on the fish-serving, including it only on certain flights or out of certain catering points. But in general they're making an effort to satisfy their Catholic passengers wherever possible.

Complicating the Friday meal problem is the question of whether Catholics may eat meat if fish is not available. Some airlines say that they can, others are silent on the subject. Inquiries disclose that dispensations are rather widely granted in warm climates, but it's up to the individual Bishops in other areas.

The survey showed:

- **The only two domestic lines** not serving fish at all are Delta Air Lines and National Airlines, and the latter is experimenting with fish entrees. Chicago and Southern discontinued the general practice, but allows certain caterers to furnish fish.

- **Two airlines**, American and Capital, are now offering their passengers, a choice of fish or meat on certain flights where serving time permits a selection.

- **All but two lines**, Western and Continental, report complaints, mostly describing them as "few." They point out that the criticisms apply both ways. One line, TWA, discontinued serving fish, but reinstated it because of complaints.

- **In the international field**, Pacific-Alaska Division of Pan American World Airways discontinued fish because of numerous complaints but has recently started carrying a few cans

of salmon. British Overseas Airways Corporation serves no fish entrees but carries six servings per flight and has it available on request. Others serve on request.

Reports of the individual airlines were:

American Airlines: After experiments on 95 lunch and dinner flights, AA is offering salmon or swordfish steaks together with tenderloin steaks or other meat (50-50 division) on certain flights of one hour 15 minutes or longer in and out of its largest Catholic cities. At some catering points, all-fish entrees are provided, with minor complaints. In some instance, AA has requested that no fish be served out of certain cities where passenger preference and procurement is in question.

Unusual Dishes

United Air Lines: Serves fish on all flights, with few complaints, "primarily because we encourage our chefs and caterers to provide unusual fish dishes . . ." Experimented with providing 50-50 division but discontinued it because many passengers desiring fish couldn't be accommodated.

Trans World Airlines: Once discontinued fish but reinstated it "when passenger reaction indicated that our large Catholic patronage justified it." Now served on all planes which have electrically-heated equipment which will insure the fish "reaching the passenger in a tasty and attractive form." Most planes have this equipment. TWA provides Kosher kits and vegetarian meals on international flights and feels Catholic patrons "are entitled to the same consideration in both domestic and international operations."

Eastern Air Lines: Started serving fish about a year ago because of passenger reaction. Now serves it on segments where food reports show passenger requests for it. Very few complaints either way.

Delta Air Lines: Does not serve fish. Because of hot weather, in south, company has been "afraid to trust our caterers to see that the fish is properly refrigerated and prepared. Furthermore, this is certainly a problem in regard to odors aboard flights, particularly when the weather is extremely warm." Has received complaints, especially from

Catholic clergymen. "These . . . while seriously accepted, represent a very small minority, and . . . it is our aim to work toward providing menus acceptable to the majority of our passengers."

National Airlines: Does not serve fish but is experimenting with several menus. Has been unable to find type of fish that lends itself to being under extended high temperatures prior to serving. Also, most fish is "highly susceptible to spoilage in the varying conditions that are encountered in airline catering." General policy and attitude is an "open one" and serving of fish will probably start when a suitable entree is found.

Not 'All Out'

Chicago and Southern: Discontinued general practice and doesn't go "all out" on serving seafood. Discontinued because many people dislike fish, odor isn't appetizing, fish might not be fresh. However, serves fish "if we have assurance and proof that caterer will constantly furnish fresh fish and seafood and that it will be served in a very appetizing manner. Majority of passengers realize that menu variety on planes is limited and understand situation when fish is not served. Catholic faith permits eating of meat if nothing else available . . . Old standbys like roast beef and steak are served on the majority of C&S flights . . ."

Northwest Airlines: Serves fish or seafood menu. "We have had just as many comments against it since we have used it, as we had when we served meat."

No Odor

Western Air Lines: Recently started serving fish, and has received no complaints. Followed no-fish policy "due to certain misconceptions held by some of our personnel that fish odor was offensive . . ." After many requests, however, WAL experimented at three key stations, found that passengers wanted fish and that every stewardess except one recommended that it be served. "We also found there was no offensive odor, and that the odor, if any, only served to make people hungrier . . . To prevent certain types of undesirable fish being served, we have issued a directive that only file of salmon, halibut and sole, also shrimp and broiled lobster tails be used."

Capital Airlines: Was serving all fish on Friday, but because of complaints, is now serving fish and meat 50-50.

Braniff Airways: Serves seafood, often in form of shrimp creole or similar dish which is more popular and holds up better than fried or baked file of fish. Few complaints. Feels fish "enables many Catholics to eat a complete meal which they would be deprived of otherwise," and also adds variety to menus.

Mid-Continent Airlines: Doesn't serve hot meals, but uses tuna fish salad sandwiches on Fridays. Few complaints.

Continental Air Lines: Uses tuna fish salad as main entree on cold plate dinner. No fish on noontime lunch flights. No complaints.

International

Pan American World Airways, Atlantic Division: Serves fish, but only on request. Carries standard meat menu but has fish for those who don't eat meat. No complaints.

PAA Pacific-Alaska Division: Discontinued fish because of numerous complaints. Keeps a few cans of salmon available for those who insist.

PAA Latin American Division: Fresh frozen swordfish served on Constellation but not on other trips because fresh fish isn't available at most of LAD's 18 on-line catering points, and only Connies and Boeings can handle frozen foods (Boeings don't operate on Fridays). Tried tuna fish casserole several years ago but complaints were numerous. Most Latin countries have dispensation. However, LAD will try to serve fish to any passenger requesting it in advance.

No Fish Entrees

BOAC: "Our policy is to serve no fish entrees . . . but anybody that desires it will be accommodated. It seems that fish is generally not appreciated by airline passengers." Carries six servings per flight. Seven-course dinner on Monarch service includes fish, so passengers can "take it or leave it as they see fit." Served fish on old Baltimore-Bermuda run but quickly abandoned it because of complaints.

KLM Royal Dutch Airlines: "Only airline that has a Flying Chef on board, and we serve anything anybody might wish."

Air France: Serves fish on special request. "Since our meals are very copious and always include fish in one form or another, even should passengers abstain from eating the meat . . . they would still partake of a very satisfactory meal."

Scandinavian Airlines System: Usually serves fish for lunch and sometimes for dinner. No complaints.



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Airline of the Stars

Sales Promotion

INTENSIVE American Airlines air freight sales campaign is now underway, aimed at restoring AA's leadership in that field, and utilizing increased capacity the company now has following delivery of DC-6B's. Campaign, which ends Aug. 15, will feature a "cargo blitz" in key cities, with all sales personnel in such cities devoting full time to air freight sales for one week. Until Aug. 15 all non-cargo sales personnel are devoting at least double their normal allotment of time to air freight sales, while personnel who nor-

mally spend no time on cargo are making a minimum of two calls daily.

Western Air Lines is distributing a colorful, attractive folder, "Fly to Western America's Vacationlands," featuring Las Vegas, Yellowstone, Mt. Rushmore, Mt. Rainier, San Francisco, Southern California . . . **Capital Airlines** continues its effective direct-mail campaign. Latest mailing piece is in the shape of a foot, and is aimed at chiropodists, calling attention to their annual convention in Chicago in August . . .

TWA is out with some attractive literature on its Travel Awards Program, which offers package travel plans to corporations for use as prizes in incentive contests. **Pres Tolman**, who left Eastern Air Lines some time ago

to go into business for himself as a consultant on use of travel as prizes in such contests, is retained part time by TWA . . . As a service to passengers, TWA is now carrying American cigarettes for sale on its international flights. They can be bought by the carton.

Eastern Air Lines is distributing a thick package of vacation folders in a cover entitled "Eastern's Low-Cost Luxury Vacations."

New Services

EVERY-hour-on-the-hour DC-6 commuter service between New York and Chicago, from 8 a.m. to 6 p.m. was scheduled by **American Airlines** to start July 1. Company had been operating nine non-stop DC-6's during those hours, and the addition of two gave it hourly service.

Northwest Airlines has asked the CAB to allow it to include Chicago as an intermediate stop between Detroit and Milwaukee. The change would permit NWA, which now operates directly between Detroit and Milwaukee, to provide through-plane transcontinental service via Chicago.

Central Airlines has started scheduled air freight service, becoming the 13th local service carrier out of 18 to handle all types of air cargo . . . **West Coast Airlines** has received CAB's okay to suspend operations at Anacortes, Mt. Vernon and Everett, Wash., and McMinnville, Ore. Suspension is effective until 60 days after final decision in WCA's certificate renewal case. Company has experienced low traffic at each point.

All **American Airways'** recently-authorized route extension from Harrisburg to Scranton/Wilkes-Barre will be put into operation on Aug. 1 . . . **Mid-Continent Airlines** will start service July 15 at Lincoln, Neb., using Lincoln Air Force Base.

Avianca Colombian National Airlines has put its new Lockheed Constellations on New York-Bogota route, with flight time of 11 hrs. 30 min., four hours faster than the DC-4's replaced . . . **Scandinavian Airlines System** is now operating 11 weekly round-trips New York-Europe, six offering direct service to Scandinavia and five serving Hamburg and Bremen.

TWA was first airline to start operations at newly-completed air freight terminal at Los Angeles International Airport. Space in the passenger terminal formerly occupied by company's air freight department will be used for a passenger lounge.

Philippine Air Lines has opened a new office in Zurich, Switzerland, at 37 Pelikanstrasse. **C. R. Lussy** heads the office, which is the 21st established by PAL outside the Philippine Islands . . . Limousine fare between Logan International Airport and downtown Boston hotels will be increased from 75c to \$1 a trip if state public utilities department approves request of **Airways Transportation Co.**

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United Air Lines SILVER JUBILEE

Between 1926 and 1951, United Air Lines has expanded its routes from 460 to 13,250 miles, its personnel from 10 to 10,000 and its fleet from 6 single-engined open-cockpit planes to 136 multi-engined airliners and cargo carriers.

Just a few short years after this giant was born, Connecticut General issued group life insurance protecting all United personnel, including pilots, without flight restrictions. Such insurance, first issued by Connecticut General, was early recognition of the reliability of air transportation. It was only one of the pioneering steps Connecticut General has taken in liberalizing life and accident insurance, both on a group and individual basis, for those who fly.

Today, the personnel of 32 airlines are protected by Connecticut General group plans.

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JULY 9, 1951



IMPROVED SAFETY for passengers is the goal of rearward-facing seats, which the Military Air Transport Service plans to install on 20 of its Boeing C-97 transports. Although unusual, the seats are not in the least uncomfortable, according to military passengers who have used them.

MATS Installs Rear-Facing Seats

New arrangement will be used in all future military transports for greater safety, visibility.

FIRST step in what will eventually result in all passengers on Military Air Transport Service planes riding backwards was taken by MATS with the conversion of the first Boeing C-97 to rearward-facing seats to provide greater safety in take-off or landing accidents and also better visibility.

Initially, 20 C-97's will be equipped with the backward seats, but all future transports ordered for MATS use will be so equipped.

The seats, specially designed to take loads up to 16G, are manufactured by Beech Aircraft Corp. When not in use they may be easily folded against the cabin walls to provide cargo space. Modification of the C-97's to take the rear-facing seats is being handled by Lockheed Aircraft Service, Inc., at its Burbank, Calif., plant. The modifica-

tion work includes slight changes in floor structures and installation of floor fittings.

Seat research work showed that the rear-facing seat affords a greater degree of safety than front-facing seats. In conventional seats, the safety belt is the only support for the body in case of crash take-off or landing.

In rearward facing seats the extra support provided by the back of the seat so that the entire back, head, neck and parts of the arms and legs absorb crash deceleration may prove the difference between a major or a minor injury.

Laboratory tests have proved the human body capable of withstanding over 40G deceleration without injury, provided the deceleration load is properly distributed.

AIRLINE PEOPLE

ADMINISTRATIVE

Norman P. Blake replaces George A. Doole, Jr. as director of Pan American's Middle East and India region.

C. C. Turner advanced to gen'l mgr. of Qantas Empire Airways succeeding H. H. (George) Harman, retired.

Hugh W. Davis elected vice president operations for Southern.

Paul J. Rodgers named exec. ass't to the president of Ozark.

J. B. Carl, Ozark's vice pres.-operations, is on leave of absence.

OPERATIONS-MAINTENANCE

G. D. Smith named maintenance coordinator for Mid-Continent.

Station Mgr. Jack Stanton transferred by Delta from Macon, Ga. to Chattanooga; Forrest McDuffie succeeding him at Macon.

Dale Medland becomes staff sup't ground services at United's Denver base. Henry Hyde succeeds him as station service mgr. at Seattle. E. J. Williston named station mgr. at Long Beach.

James M. Glod is now sup't cargo service for American, assisted by Carl B. Leidersdorf, cargo processing, M. T. Downing, cargo handling, and C. D. Loveless, cargo service administration.

F. A. Gentile promoted to supvr. of ground station radio maintenance for Mid-Continent. B. C. Moffatt named supervisor aircraft radio maintenance. K. L. Wickwire becomes United's station mgr. at Los Angeles.

TRAFFIC & SALES

Albert S. Jalkut named New England cargo sales manager for United.

Daniel L. Connell named sales mgr. for Western for the province of Alberta. William K. Kellogg is sales mgr. for San Diego and Robert K. Vernon for West Los Angeles, Beverly Hills and Santa Monica.



Order Your Copies Today—Use Coupon on Page 35

Airline Commentary

By Eric Bramley



TOM Miller, vice president-traffic and sales of Chicago and Southern Air Lines tells us that **B. L. Anderson**, who holds the same title with Philippine Air Lines, decided to pay a hurry-up visit to the recent International Air Transport Association meeting in Bermuda. "It seems that Andy made the trip from Manila to Bermuda in exactly 60 hours," Tom says. "This represents an average speed of 220 miles an hour, which to me is quite something when you consider that he changed planes and carriers in both San Francisco and New York. Wouldn't this be some kind of record?" Sure sounds like it, but we'll leave it up to the readers.

Under the heading of coincidences: United Air Lines employs two G. Flemings. One is George Fleming, superintendent of accounting procedures, a 23-year man, the other is Golden Fleming, UAL crew chief at Chicago, a 21-year man. Both have the same birthday, Feb. 21. For a long time they didn't speak, following an argument about who was entitled to the parking space marked "G. Fleming," but now they're good friends. On Feb. 21, the company cafeteria prints a "Happy Birthday" menu in their honor. They receive each other's mail, phone calls, checks, etc. Biggest laugh came several years ago when UAL offered several thousand shares of stock for employee purchase. Both Flemings applied for 50 shares, but Goldie never received his allotment. Check-up revealed that George had the whole 100 shares.

The Cleveland Indians and the Chicago White Sox were recently locked in a tight ball game, tied at the end of the ninth. In the top of the 10th, the Indians scored three runs and all **Bob Lemon** had to do was to retire three Sox batters to hang up another win. However, the Sox never got to bat because the clubs had agreed to end the game at a certain time so the Indians could catch a train for New York. Therefore it ended in a tie because the inning wasn't completed.

Franklin Lewis, sports columnist for the Cleveland Press, points out that the teams were cheating the public by not giving them a full ball game, and that the Indians could have flown to New York. Seems like half a dozen of the players didn't want to fly, Lewis reports, so the club used the excuse that no airline could provide it with a suitable plane.

Ironically, one of those who didn't want to fly was Bob Lemon, who almost had the game in his pocket. To top it off, Lewis adds, the Indians arrived in New York "tired physically and grumbly mentally" and lost to the Yankees. What better reasons to use air travel—complete a ball game, give the customers what they paid for, and arrive rested for the next game. With air transport what it is today, we'd even like to see west coast representation in the majors.

Here's a brand new idea for the airlines. A passenger wrote to Trans-Canada Air Lines as follows: "This is my first night flight on TCA and while I enjoyed it very much I felt as if great events were taking place in the outside world of which I was not aware. Would it not be a good idea—and good advertising—to have a lighted bulletin board flashing the latest news around both wings? In this way, passengers could relax in their seats knowing Joe Stalin was not up to anything and farmers down below could look up in the frosty night and say: 'Look, there goes TCA.'" TCA's comment on the letter was very appropriate: "Uh-huh."

Don Shidler, Mid-Continent Airlines' station manager at Shreveport, swears this is true, so we'll let him tell it: "I thought I had seen just about everything until the other day. The story is this: a passenger walked up to our ticket counter, had his suitcase weighed, and discovered it tipped the scales at 30 pounds, 10 less than the maximum. So, he opens up his suitcase and it's full of rocks! He picks up the suitcase and goes out to his car and gets enough additional rocks to make up his 40 pounds."

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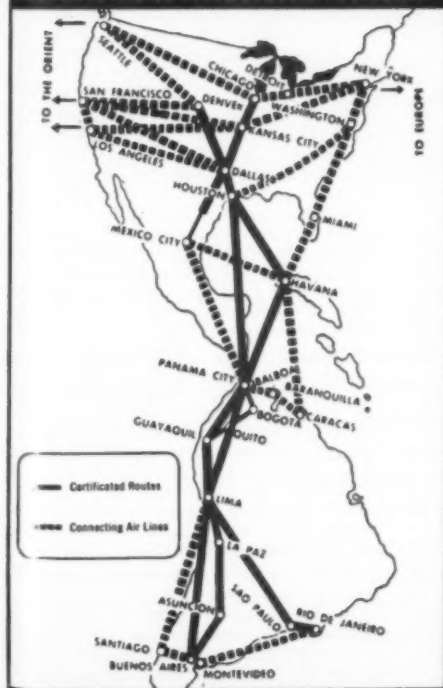
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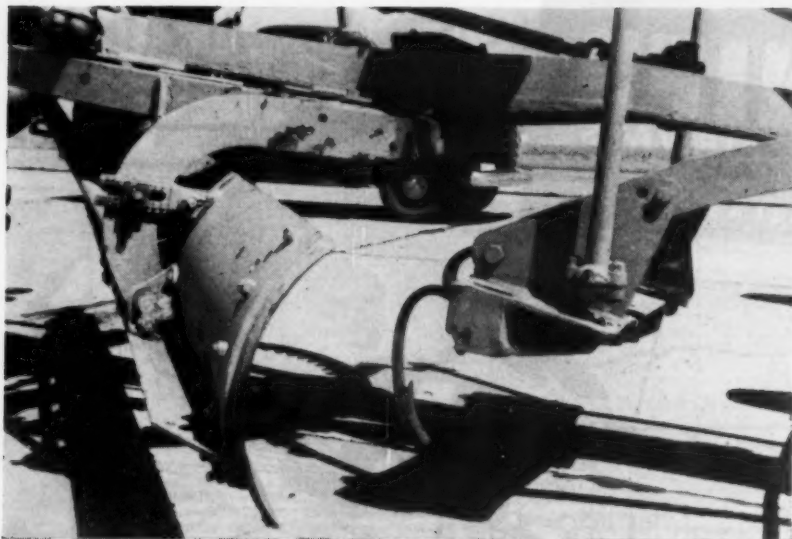
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JOINT PLOW pictured here, a conventional spring-tooth harrow mounted on the drawbar of a self-powered road grader, is cutting maintenance costs at Nebraska airports where it is used to remove old tar from runway joints before resealing.

Home-Made Plow Cuts Runway Costs

Nebraska airports find savings in use of harrow for removing tar from joints before resealing.

A "HOME-MADE" plow which effectively removes tar from runway joints preparatory to resealing, making possible a worthwhile saving in airport maintenance costs, is being used with good results on a number of airports in Nebraska.

The problem and the solution, as explained by Neil Withrow, supervisor of airports with the Nebraska Department of Aeronautics, were as follows:

• **Problem:** In attempting to seal construction and dummy joints in concrete runways, it was found necessary to clean the sidewalls of the joints thoroughly before the sealing preparation (Enamelite) would take a good bond.

The job of scraping original tar from the joints, however, was slightly too much for the Tennant Model G. Groover the airport owned, and little success was being had in getting the sidewalls cleaned except through use of a cutter spacing that made the cost of grooving prohibitive.

• **Solution:** A contractor who had encountered the same problem while working on the Offutt Air Force Base at Omaha came up with the idea of fashioning a plow which would dig out the old tar and leave the joint in such a condition that the Tennant machine could clean the sidewalls. Here's how he did it:

A conventional spring-tooth harrow is mounted on the scarifier drawbar of a

Motor Patrol (self-powered road grader) in such a position that the operator can at all times keep it in view with relation to the crack which he is grooving. The plow can be raised or lowered at will, and any required pressure can be used. The old material, whatever the type, can thus be plowed to any depth desired. If the crack is to be filled with the same material that was originally in it, it is not necessary to do anything further before resealing.

When attaching the plow to the scarifier drawbar, it is necessary to cut holes completely through the bar in such a manner that the forward hole is relatively square and tight. The rear hole must be rectangular so that the plow may have sideplay without twisting and turning. This allows the operator to follow irregular cracks, veering slightly from side to side and eliminates the necessity for keeping directly above the crack.

In some installations it has been necessary to build a box on top of the drawbar framework to hold the plow so that a pin may be inserted through the end of the spring-tooth harrow in order to keep it upright.

The parts used successfully in the Nebraska adaptation are standard parts manufactured by the John Deere Company, the spring-tooth harrow being No. 29022A and the plow shares No. Y850A in the John Deere catalogue.

Advice on Flying Clubs

How flying clubs can be profitable to airport operators is told in a revised CAA booklet, titled "The Flying Club."

The booklet points out, for example, that instead of worrying about collecting the price of the plane from ten to twenty people, best practice is to have the group make a one-third down payment and to float a loan from a bank for the other two-thirds. The bank will hold as its security a note signed by all the club members and a chattel mortgage on the airplane.

The CAA booklet can serve both beginners and experienced club operators. After giving tips on club organization, cost analysis, financing and insurance information, it offers a practical plan for club operation. An appendix contains suggested articles of incorporation, by-laws, and a rules and operations manual, all taken from actual, operating, successful flying clubs.

"The Flying Club" is available from the Supt. of Documents, U. S. Govt. Printing Office, Washington 25, D. C. for 15c.

CAA Airworthiness Directives

Beech Model 35 aircraft have an extended compliance date on inspection of rudder pedal bellcrank push rod and the differential tail control rods for a heat treat stamp on each, as required in Airworthiness Directives 51-8-2. New date is September 1, 1951 instead of June 1.

Ryan (North American) Navion compliance date for inspection of throttle control housing for slippage has been changed from April 16, 1951, as required by Airworthiness Directive 51-7-1, to July 15, 1951.

Piper model J-3 series and PA-11 aircraft must be inspected each 500 hours at the four forked clevis ends (Part No. 11281) for straightness and for cracks at the thread roots, removed and cleaned; and each 100 hours of operation the clevis ends must be inspected. Replacement of the part is required each 1,000 hours. No clevis parts may be re-used after a crash or salvaged from used aircraft, according to Airworthiness Directives 51-15-1.

Franklin engines 6A4-165-B3 serially numbered 33046 and below, with original crankcase, must be inspected by removing crankcase cover and visually inspecting webbing near the main journal area for cracks. If necessary, crankcase may be replaced by assembly P/N 18925. Inspection required July 15, 1951 and each 250 hours thereafter until reinforced crankcase is installed, according to Airworthiness Directives 51-15-2.

Beech Model 35 and A35 aircraft. Unmodified Adel 20853 Electric Fuel Pumps must be removed from the airplane. Modified fuel pumps are not affected by this instruction. Compliance was required by April 1, 1949. Airworthiness Directives 51-14-1 supersedes 49-28-2.

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The New Esso Fueling Truck

Serves United's Latest Type of Plane



ON April 5th, United Air Lines completed its 25th year of operation. In a quarter of a century of pioneering in the development of air travel, United has expanded its airways from 460 to 13,250 miles; its personnel from 10 to 10,000; and its fleet from 6 single-seat, open-cockpit planes to 135 giants of the sky.

Esso is proud to have had a share in this great achievement. For many years Esso has fueled United planes, and now at many large airports Esso Aviation Gasoline is used exclusively for United's fuel requirements.

Typical of the close cooperation between Esso and United is the recent introduction into service for United at LaGuardia Airport of two 5,000-gallon refueling trucks designed by Esso Automotive and Aviation Divisions. A modern hydraulic power take-off pumps the fuel, eliminating the need for a separate pumping engine,

and supplies each of two hoses with 125 gallons a minute—although the capacity is much greater.

Not only do many leading airlines look to Esso for their petroleum product needs, but also many executive aircraft and private plane owners prefer Esso Aviation Products, and look for them at the airports they use.



AVIATION PRODUCTS

SOLD IN: Maine, N. H., Vt., Mass., R. I., Conn., N. Y., N. J., Penna., Ohio, Del., Md., D. C., Va., W. Va., Ky., N. C., S. C., Ga., Fla., Ala., Miss., Tenn., Ark., La., Texas.

Ramp Time Reduced by Cargo Conveyor

An automatic conveyor system capable of unloading nearly 5,000 pounds of cargo from a C-47 in eight minutes, which eliminates all manual handling between terminal building and airplane, and which "tucks" itself away when not in use, is being tested at Kelly Air Force Base by the Military Air Transport Service and the San Antonio Materiel Area.

Evolved at the suggestion of Maj. Gen. Clements McMullen, the system was designed by Arthur I. Wagey, a civilian engineer at Kelly, and was built in the maintenance shops on the base.

The platform of the conveyor has two parts, a 58-foot section built into the floor of the cargo building and a 56-foot section that extends from the door of the terminal onto the loading ramp. The extension retracts into the building under its own power, fitting snugly beneath the stationary part, and rolls out on the ramp when a plane is ready to receive or discharge freight.

Uses Rollers

The indoor section, on which parcels are moved forward by hand, uses conventional rollers, while the rollers on the extension are powered. A boom at the end of the conveyor line raises or lowers itself to the height of the cargo doors. Attached to this boom is a hydraulic transfer leaf that makes contact with the bed or deck of the cargo compartment. The whole mechanism is operated from inside the terminal.

Working on the principle of an escalator, the conveyor can adjust itself to serve any transport in common use by the Air Force or MATS, including the C-46, C-47, C-54, C-74, C-82, C-97, C-119 or C-124. It is strong enough to bear a weight of 1,000 pounds per pallet.

In a recent trial run at Kelly, the conveyor system offloaded 4,774 pounds of freight from a C-47 in eight minutes flat—an operation that, would have taken an hour or longer using trucks and dollies. Onloading is necessarily slower because of weight and balance details.

Further Cuts Likely

Even so, loading is considerably faster than by hand, and Kelly officials believe onloading time can be cut down even more by studying the load characteristics of different planes and feeding cargo onto the conveyor in an order permitting the speediest stowage.

General McMullen, who is commanding general of the San Antonio Air Materiel Area, believes that as soon as some minor quirks in the system have been smoothed out the Kelly conveyor

Airport News Digest

WATCH THAT PLOW: Lots of airports are realizing tidy sums of revenue by leasing land for farming purposes between runways and taxiways and on other parts of the field outside the landing and building areas. This practice can have its disadvantages, however, as witness this item from *Rudder Flutter*, official publication of the Idaho State Dept. of Aeronautics: "The north-south runway at the Aberdeen Airport cannot be used this summer. By mistake, a farmer plowed part of it up. Don't use N-S runway at Aberdeen until further notice."

KEEP IT CLEAN: Having never given much thought to how much it costs to keep windows clean at an airport, where clear unobstructed views of the field and the air above it are most important, this column noted with interest the recent action of the city council of Columbus, Ohio, in setting up \$900 as a yearly budget item for keeping windows clean in the administration building and control tower at Port Columbus.

ADMINISTRATION BUILDINGS

- Contracts have been let for construction of \$6,754,000 passenger terminal building at San Francisco International Airport.
- Contracts totaling \$1,906,661 for construction of new terminal building and terminal area roadways at Houston Municipal Airport have been let.
- Sioux City, Ia., is applying for a Federal-aid grant of \$215,000, representing one-half the cost of its proposed new airport administration building.
- Bids have been advertised for construction of an administration building costing about \$175,000 at Morgantown (W. Va.) Municipal.
- Contracts have been let for new \$835,000 administration building at Sky Harbor Airport, Phoenix.
- Construction has been started on \$135,000 building at Iowa City Municipal.
- Administration building for new St. Clair County Airport at Port Huron, Mich., has been started.

RUNWAYS, OTHER PAVING

- Bids have been advertised for a complete seal coating of runways and taxiways at Greater Cincinnati Airport.
- Greater Peoria Airport Authority will sell \$275,000 in bonds for airport improvements, including resealing of runway and taxiway joints, apron paving, and construction of an air freight building and T-hangars.
- Contract for extension of principal runway at Boeing Field, Seattle, to 10,000 feet has been let.
- Contract for paving of new asphalt aprons and taxiways at Worcester (Mass.) Municipal at cost of \$147,000 has been let.

CONCESSIONS

- A new dining facility, the Aire-o-Room, has been opened in new addition to administration building at Mason City (Ia.) Municipal.
- Airport Cocktail Lounge, Inc., has leased 682 sq. ft. of space in new Boutwell apron building at Logan International Airport, Boston. Lease is on percentage of gross with guaranteed annual rental of \$6,820.

MISCELLANEOUS

- Construction has started on new Middlesboro-Bell County (Ky.) Airport.
- Little Rock city council approved \$100,000 revenue bond issue for expansion and improvement of Adams Field.
- New \$5,000,000 commercial airport at Fairbanks, Alaska, is now in operation.
- Tucson (Ariz.) Airport Authority is taking over Ryan Field, surplus military facility 16 miles southwest of the city, and will develop it as an auxiliary to Tucson Municipal.

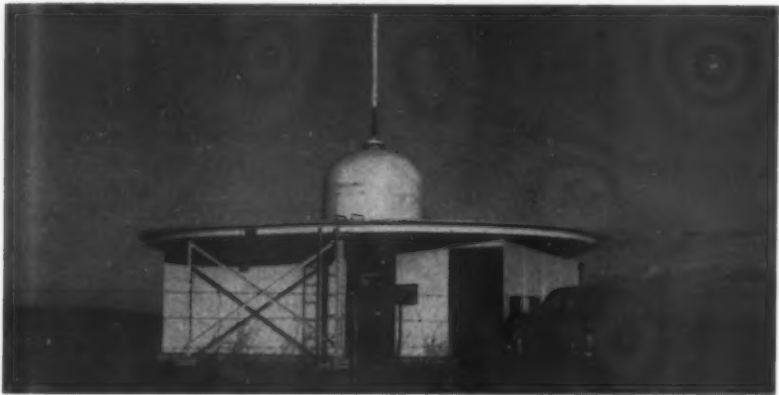
will command attention from operators of commercial airports throughout the country.

"It takes longer to load and unload

an airplane in many cases than it does to fly the cargo from airport of origin to airport of destination," he commented.



PLASTIC "DERBIES" like this are used as housing for terminal VOR antennas atop a counterpoise, or electrical ground, which ensures an even signal. The small white building houses transmitting equipment and is located 200 yards from the antenna dome. Both equipment shelters are located about 350 feet from two intersecting runways.



ENROUTE VOR, the standard omnirange station, is shown here. This facility requires a large transmitter building to protect duplicate sets of omni-transmitting equipment, a complete Distance Measuring Equipment station and an emergency power generator. The counterpoise and plastic antenna dome are placed on top of the transmitter building. The vertical "stovepipe" houses a DME antenna.

New Landing Aid For Smaller Fields

CAA tests "Baby Omni" at five airports, plans 75 installations if device is successful.

By VERA FOSTER

TERMINAL VOR, sometimes known as "Baby Omni," may take the place of ILS at low traffic density airports, according to CAA. It promises to be a landing aid boon to these smaller fields by making possible charter flights, executive flying and local service in poor weather.

• "Baby Omni" is a quarter-strength omnirange station installed near the intersection of the most-used runways. It can be used as either an en route aid or an approach and landing aid.

• Cost of the Terminal VOR is estimated at approximately \$36,000 as compared with the \$65,000 to \$70,000 needed for installation of standard omniranges. This factor brings smaller airports into the picture.

• Minimums are to be approved at

least as low as 800-foot ceilings with one mile visibility. With experience, minimums may be approved as low as 500-foot ceilings and $\frac{1}{4}$ mile visibility.

• Future of the small omnirange seems assured as test installations bring out new uses and advantages of the Terminal VOR. A beginning has already been made in installations.

What It Does

Terminal VOR brings the pilot right in over the end of the runway for into-the-wind landings, in addition to assisting him to navigate to the airport. If the course into the station is held, the pilot will break out of the overcast and see the runway just to the left of his nose. If he flies on into the station the aircraft must pass directly over the end of the runway, though at an angle to it.

A method of obtaining a straight ap-

proach would be to install the station below the surface of the runway. Problems of expense, watertight construction and maintenance, however, make this impracticable at present.

TVOR compares favorably in accuracy with the standard omni and has a range varying from 28 to 50 miles, depending on the type of receiver used and altitude.

In addition to its landing aid uses, it provides a static-free network of private flying aids. TVOR should be an incentive to local operators to add even more equipment to the roughly 4,500 omni sets now installed in non-aircarrier aircraft.

What It Is

Terminal VOR is one of a family of three types of omnirange stations—standard VOR, TVOR, and LVOR. LVOR differs from the TVOR, or baby omni, only in that it has standby duplicate equipment.

Technically speaking, TVOR consists of a 50-watt transmitter, a standard goniometer, modulation eliminator, oscillator keyer and two standard phasing lines.

All equipment is housed in a small building less than six feet square, placed 200 yards away from the antennas. The transmitting equipment, if too close to the antennas, loses clarity; if located too far away, loses range.

The antenna system, placed about 350 feet from the runway intersection, is housed in a plastic "derby" shelter. The counterpoise and shelter rest on skids directly on the ground.

No standby equipment is provided (nor is standby provided for present 25-watt homing facilities.) The station is closely monitored.

Cost

Twice as many TVOR's may be installed according to CAA, as would be financially possible if only standard VOR or LVOR stations were used, since the TVOR costs about half as much as a standard station.

The smaller station costs approximately \$36,000 as compared with \$65,000 to \$70,000 for standard omni. Installation of an ILS system requires \$120,000 and an "H" type, low-frequency marker alone costs from \$11,000 to \$15,000.

The lack of standby equipment and separate power sources accounts for a major part of the cost cut. Another factor is the less expensive transmitter used.

The Indianapolis installation was made up from \$3,000 worth of parts bought in quantity for the standard ranges. It has been operating without interruption for several months.

Present planning indicates standard

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parts may be used, should separate warehousing and inventories for less expensive parts negate their economy. In any case, as much interchangeability of parts as is possible is desirable.

It would appear that the location of the station on or near the airport would effect considerable savings in building access roads. It has been found, however, that the cost of under-runway conduits, etc., balances the difference.

Minimums

Minimums at the 75 proposed low traffic density locations of the "Baby Omni" will be at least as low as is presently allowed on approaches made using 25-watt homing facilities, according to CAA. Generally, such 25-watt homing stations allow approaches with 800 foot ceilings or an easy airport circling height.

Test approaches at Indianapolis have been made with a 300 foot ceiling and half-mile visibility. With marker beacons installed the CAA indicates that it might one day allow approaches with a 300 foot ceiling and ¼ mile visibility.

Installation of marker beacons would substantially increase the cost of the TVOR. To retain the "X-pattern," all-runway, feature which allows into the wind landings, four sets of markers would be necessary.

It has been suggested that moderate limits be placed on airports equipped with TVOR, with lower limits approved for one, or perhaps two, runways equipped with markers.

Future Outlook

Results of CAA's test program thus far are promising.

Five installations have been made at test points—Augusta, Me.; Traverse City, Mich.; Toledo, Ohio; Oklahoma City, Okla.; and Washington, D. C. Only the Toledo test installation is the LVOR-type station. If satisfactory, the small omniranges will be a permanent feature of the airports.

Twenty TVOR's have been ordered from the Maryland Electronic Corp., College Park, Md. A total of 75 stations are planned in the near future. Bids have not yet been requested for the balance of the equipment.

Used together with Airport Surveillance Radar the small omnirange eliminates the necessity for constant monitoring to direct aircraft outbound. Pilots with omni equipment can determine their own bearings instead of requiring constant communication with the radar operator.

Communications is the bottleneck in many cases, to IFR air traffic. The TVOR, then, is not only usable as a primary aid at small airports, but is a healthy addition to major terminals.

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Washington View

By Vera Foster



WASHINGTON executives of national aviation organizations which represented flight school operators were notified a month early of contracts which were to be let for training of "less than 3,000" Army aviators recently.

A month later the news became available to the aviation press. Army officials explained that this was to prevent a rush to buy equipment on the chance of a contract. The program is not a continuing one, the Army said, and present civilian facilities more than fill the need.

In any case, several operator-members of the organizations were more than repaid their investment in dues.

Remember the Emergency Aviation Council State Plan for Civil Mobilization with Annex for Civil Defense Organization that has been drifting around the Capital for so long? It was approved recently by the Federal Civil Defense Administration. FCDA spokesmen say that mimeographed copies will soon be available.

Operators deep within control zones will benefit from revision of Civil Air Regulations Part 60, now under consideration. The proposed amendment would allocate acrobatic flight practice areas for such operators. Air meet, minimum flight altitude and traffic pattern rules are also up for revision.

The price increase of the Beechcraft Bonanza, \$3,000, has not affected its salability a great deal, Beech dealers comment. Dealer allocations are running about 60% to 70% of last year's airplane supply. The Beech Model 35R, by the way, has been okayed by C.A.A.

Veterans Administration officials say that G.I.'s finishing courses after July 25th, who want additional training, must send in a letter of intent to the VA before they complete current courses. Approvals on flight course applications have been running between 68% and 73% lately.

At a recent meeting of the Aeronautical Training Society in Washington Oliver E. Meadow, staff director of a committee investigating G. I. Bill training asked operators to help him answer three questions:

What can be done to prevent veterans not qualified to become commercial or professional pilots from taking the training? What can be done to keep schools from participating that are not professionally qualified? What courses can be designed that will NOT be subject to criticism as "avocational". We'll be happy to relay your answers.

Lycoming's 260 hp, GO-435-C2 engine is having an important effect on executive plane profiles. It is used in the new Twin-Bonanza, the Ryan Super Navion, and the Regent Rocket 260 as well as other ships. It is the only geared six-cylinder engine in its horsepower class.

Owners and operators of aircraft with low-frequency radio equipment should be happy to learn of a recent meeting of the NAV Panel of the Air Coordinating Committee. Instead of decommissioning LF ranges in 1952 the Panel suggested that only a few "uncontroversial" ranges be shut down next year.

The Panel plans to review the entire problem every six months until such a time as the national emergency and increase in airborne equipment makes it feasible to cut the LF stations down to about 78 ranges needed to maintain certain services to the flying public.

Army Signal Corps reserve lieutenants are being asked to volunteer for flight training as Army aviators. The Corps seeks about 2,500 new pilots to fly its liaison and helicopter types.



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UNITED AIR LINES

Letters

(Continued from page 8)

same location by United Services for Air Co. and Commando Components Corporation, Successors. All the manufacturing engineering that went into the C-46 aircraft has definitely not disappeared from the scene and is still available, along with a large inventory of specialized C-46 parts and components warehoused at Buffalo and West Palm Beach, Fla. A branch office is maintained in Miami, Fla. Definitely, the successors to United Services for Air are active in the C-46 picture.

Your article also states that Slick Airways developed the program which proved the most widely accepted to modify the C-46 for commercial service. This, we believe, is in error, as the first C-46 converted by our predecessor company was sold to Slick early in 1947 at a time when they were operating a fleet consisting entirely of C-46E Model aircraft not requiring the conversion of controls as in the A & D Model aircraft. Approximately 80 aircraft were converted by USair following the same pattern, including the C-46F aircraft operated by Pan American World Airways. The pattern for converting the C-46 A & D Model aircraft was set by USair C-46 engineering. There were no basic changes from that pattern, making United Services for Air Engineering the original and most widely used in conversion of the A & D Model C-46 aircraft.

As we mentioned, we are writing this just to point out a few facts which we feel were overlooked when the article was written. All in all we believe the article was very good. Favorable and informative publicity is due the aircraft, as we believe it is still the finest twin-engine cargo aircraft on today's market.

HENRY C. MARQUARDT, President
Commando Components Corp.
Buffalo, N. Y.

(Editor's Note: The information in this story was obtained by a survey of several of the major distributors and C-46 sales organizations plus several government agencies including CAA and the U. S. Air Force. Since this article was published, two other companies have also claimed to have the most widely accepted conversion. Thanks to Henry Marquardt for the additional information.)

Personal Flying Ignored

To The Editor:

The article in your June 11 issue by Keith Saunders entitled "Fewer, Better Maryland Airports Urged" appears to be forward looking in many ways. However, as an outside observer completely unfamiliar with the area concerned, I

wonder if the planning of the consultants reported on has not overlooked a few basic concepts.

It appears that a rather "narrow view" has been taken on the entire subject. The statement "An integrated Maryland airport system of 24 adequate civil airports will serve the need for the indefinite future" is in my opinion rather dogmatic and uninspired.

I would like sometime to read more venturesome thoughts suggesting that personal and executive aircraft (the real basis of everyday common man aviation) will reach the utility necessary to economic survival and growth only when every hamlet, village, town, city and area of interest is served by an easily accessible airport. I grant that there are a limited number of airports requiring full development including all services and that they are perhaps the ones most needed now. However, why do these oft prepared, "exhaustive" (and expensive) reports never go off the deep end and admit that any safe landing strip, however limited in facilities, that serves a community in an area of interest, definitely contributes to and is essential to the aviation picture?

A bladed strip near a small town, usable only in the summer months and with no services, contributes immeasurably to the utility of an airplane owned by an individual who may have business there, and also brings on the air age to the local citizen who can now afford and would own an airplane even if only such limited facilities were available.

Any town or area of interest without an airport merely adds to the list of well-known reasons why personal aircraft are impractical in many ways today. The costs of constructing and maintaining these limited airports are negligible if their contribution to the "large view" of the aviation picture is considered.

The development of such limited facilities to year-round usability and more complete units is as assured for the future as the presence of all-weather and improved roads to such areas is a fact today.

I certainly hope I have misinterpreted the intent and conclusions of this study. However, the resulting recommendations, criteria and plans as disclosed in your article give no indication that this is so.

I wonder if the consulting firm traveled by air in gathering their data and thereby missed completely the facts regarding the potential in communities and areas not now served by an airport.

E. J. DICKINSON
Boise, Idaho

He's With Eastern

To the Editor:

I noted the photo of Monty Chumbley in Boedy's Album in the May 28 issue. Is he the same one who was with NATS during the war? And where is he now?

E. P. ALVORD
The Morris Plan Company
San Francisco

(Editor's Note: Ken Boedecker says it is undoubtedly the same Monty Chumbley and that he's now flying for Eastern Air Lines and is based in Miami).

The New Face

To The Editor:

Congratulations on the new cover and format of AMERICAN AVIATION. We think it's swell and feel sure all your readers will acclaim it as we do.

S. ROGER WOLIN,
Pan American World Airways,
Miami, Fla.

To The Editor:

Wonderful-congratulations! Do I see a changed format, new type, changed make-up for AMERICAN AVIATION? What a fine improvement! I was very pleased to see the change when your June 25th issue reached my desk . . .

Your move marks a new era for AMERICAN AVIATION—truly progressive.

AUBREY KEIF,
The Texas Company

To The Editor:

I am taking the liberty to tell you of our reaction to the "face-lifting program" of AMERICAN AVIATION.

I have a severe grievance with the new format. To get first things out of the way, I do agree with the experts that the interior is excellent insofar as readability and presentation are concerned. What I object to is the change in the front cover which necessitated the removal of the editorial . . .

Removing the editorial from the front page of AMERICAN AVIATION, to me, is sort of like the New York Times eliminating its front page . . . I want you to know that I think the . . . make-up is terrific. I compliment you and your fine team in your progressive policy of always attempting to stay ahead by providing your readership with the latest and best available.

HAYES DEVER,
Capital Airlines, Inc.

To The Editor:

I'm not too busy to write these days and give reaction to your new format. When the issue came over my desk I had to look twice before I recognized it as AMERICAN AVIATION. To me, it gives the impression of a magazine in the field for 25 years or more. In short, I like it very much.

D. WALTER SWAN,
United Air Lines, Inc.

To The Editor:

Just a note to tell you how much better I think your new format is. It's 100% better than before.

PAUL GAYNOR,
Buchanan & Company, Inc.

BOOKS

GAS TURBINES AND JET PROPULSION. By G. Geoffrey Smith, 5th edition, 400 pp. 355 illustrations. Aircraft Books, Inc., 370 Lexington Avenue, New York 17, N. Y. Price \$7.50.

This is the fifth edition of Geoffrey Smith's authoritative work describing with generous illustrations all types of jet propulsion in aircraft, automobiles, locomotives, and ships. It has become a standard text on present and prospective uses of the gas turbine. There is considerable new data in the latest edition.

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JULY

IN FLIGHT

A PAGE FOR ALL PILOTS

Fuel Exhaustion

FUEL exhaustion in flight accounted for an average of one accident nearly every other day in 1949, according to a recent CAB Safety Bulletin.

There were 159 forced-landing accidents in non-air carrier flying caused primarily by simply running out of gas.

Almost a third of these accidents were due to negligence of pilots who should know better—those with commercial ratings and many hours of experience. One such pilot knowingly took off with nearly empty fuel tanks and ran out of gas at 150 feet on his climb. Ignoring an adequate field ahead, he whipped the plane into a steep turn, back toward the airport, stalled and crashed. This demolished the plane and killed the pilot.

Failure to stick-measure fuel has annually accounted for scores of accidents. Pilots can save minutes here and there by relying on fuel gauges alone, but this is never a good idea; instruments are quite often inaccurate.

The attempt to save a few minutes causes pilots to leave airports fully aware that they are low on fuel, to bypass fields where gasoline is available to save another few minutes, paying little heed to the engine's need for fuel.

More than a third of the fuel exhaustion accidents occurred during local flights, the CAB study asserts. Pilots failed to check planes before takeoff, or just sat until the gas tanks were dry.

Forced landings are much easier with the engine still running than with a dead stick. By carefully picking a field, dragging it and making a planned approach before setting down, a forced landing can be little different from an airport landing.

Too many pilots apparently followed up initial carelessness with more mistakes on the forced landing with everything from stalls, misuses of the brakes, taking off low on fuel after dark, stretching the glide and running down automobiles and trees.

The CAB report emphasizes the fact that it is impossible to wean an engine and points out that any time saved in service and preflight checking before takeoff is most certainly lost a thousandfold the moment the engine starves.

The success of any flight, long or short, depends on first planning it and then flying it. Don't waste time in an out-of-the-way pasture beside a damaged airplane.

The accident tabulation below illustrates the various ways in which the 159 non-air carrier pilots came to grief in 1949:

Forced-Landing Accidents Due to Fuel Exhaustion

(Non-air-carrier)

Kind of Flying	Number of Ac- cidents	INJURY			AIRCRAFT DAMAGE	
		Fatal	Seri- ous	Minor or None	Com- plete	Sub- stan- tial
Instruction:						
Dual	3	3	..	3
Solo	32	1	5	26	7	25
Pleasure	108	15	12	81	51	57
Commercial	16	1	..	15	5	11
Total	159	17	17	125	63	96
Local						
Local	59	7	6	46	24	35
Cross Country ...	100	10	11	79	39	61
Pilot Certificate:						
Student	20	..	4	16	5	15
Private	92	12	10	70	40	52
Commercial ...	46	5	3	38	18	28

Crew Identification Cards

CREWS on U. S. international airline flights may now use aircrewman identification cards instead of passports, but they are advised of the following procedures:

- An airman may not at the same time hold both a valid American passport and a valid aircrewman identification card.

- An airman who holds a valid American passport, or one that was issued within the past four years and may be renewed or extended for further use, may continue to use his passport or may apply for an aircrewman identification card upon the understanding that his passport must be surrendered to the air carrier for transmittal to the State Department's Passport Division when the card is delivered to him.

- If the airman contemplates temporary private travel while abroad, which requires a passport, the Division will, upon request, transmit the passport to the U. S. Foreign Service office nearest the terminal airport, where the airman can obtain it upon depositing his card. When he returns from the trip, he exchanges the passport for the card. Foreign

Service office will continue to hold the passport for possible future use by the airman.

- An airman who has not obtained a passport within the previous four years and who, while abroad, desires a passport for travel for personal reasons may apply at nearest Foreign Service Office. His aircrewman identification card will be accepted as proof of his identity and citizenship and will be held until he exchanges the passport for it.

- A passport held by the Passport Division will be made available to an airman in the U. S. for personal travel abroad upon receipt of assurance by the Division from the air carrier that his card will be held by the carrier in the U. S. until the passport is returned to the Division.

- There is no objection to an airman holding both an aircrewman identification card and an airman identification card. However, the holder of an aircrewman card need not apply for and secure an airman card, because the former is deemed adequate to the purpose of the latter. This does not apply in reverse, however, since the airman card is not a valid travel document.



More Hong Kong. For the first few months after getting back from Hong Kong I was asked a dozen times a day if it's true what they say about Chinese women. I submit that this is neither the time nor the place to develop a treatise on what seems to me the most challenging single bit of curiosity in the U. S. about the Orient.

But I can avoid the primary question and still talk about Chinese women. There are many exceedingly beautiful examples of them in Hong Kong. Many are very well-dressed. And the slit



skirts are, shall we say, challenging. You can be walking along a street, head down and deeply engrossed in some trivial matter and your eye catches a slit skirt. Just as in the U. S., where a sweater gal will make you forget where you were going.

Falsies. Of course there aren't any Chinese sweater girls, or not many, at any rate. Chinese women are notoriously flat-chested but the Hollywood movies made their mark some years ago and right after the war there were tremendous orders from Hong Kong for falsies. The airline boys did a lot of good business hauling grosses of falsies from the U. S. For some odd reason after centuries of trim fronts, the Chinese women decided to imitate the Hollywood chesties in a big way. Apparently it was just a fad that lasted a couple of years. The falsie market is dull at the moment.

I don't intend to dig back into the centuries to find out all the reasons for the absence of substantial Chinese bosoms but I believe the reason is the heavy loads the girls and women have carried on their backs. From three years of age on up the average Chinese female is a beast of burden. They can carry incredibly heavy loads on their backs. Just how this accounts for similar traits in the wealthy Chinese

women I don't know. Guess I'd better pass on to another subject before I get myself too deeply involved, so suffice it to say that sweaters don't get stretched by the Chinese in Hong Kong.

Brocades. But the well-to-do Chinese women wear fantastically beautiful clothes. There is one shop in Kowloon just a block or so in from Red China. I've never seen such beautiful designs and such intricately fine work. This particular store is one place to keep your wife out of—it's a shoppers' paradise. Yet much of this material looks fine only on Chinese women in a Chinese atmosphere.

In January both Americans and British were buying large quantities of these brocades. The store owners had shops in Shanghai and other places and apparently were getting new shipments in regularly from the Red side of the border. Prices were very low by U. S. standards. A woman could pick out material in the morning, come back in the afternoon for a fitting and take delivery on the dress next morning.

Made to Order. There were plenty of bargains for men. Suits of the very finest English worsteds and gabardines were available made to order for \$30 to \$50. (The same quality in the U. S. would cost \$100 to \$200). Made up in one day if you were in a hurry.

Jerry O'Connell of Pan American took me to his Chinese tailor for a cashmere sports coat. Very finest material, three fittings, and the cost was \$55. Over in Kowloon I happened to spot some English burberry material in the window of a Chinese tailor. After dickering over the price for a while I struck a bargain for a topcoat to be made up in 48 hours for \$31. Burberry is the world's finest coat material and they sell for \$85 and up even in Canada higher in the U. S.



Played by Ear. Chinese tailoring is played by ear. You pick out the style you want from a ragged old copy of Esquire or some U. S. catalog, you get measured and somehow or other they come up with a suit or coat. No patterns or anything like that. You tell them what you want and they'll do it. They work all night long.

O'Connell's friend was a peppery little Chinese, a very agreeable salesman who didn't use much high pressuring in turning a buck and who had a rock bottom price below which he'd never go after the usual half hour of negotiating. When I stopped in for my finished sport coat he wanted to sell me a few suits and for a while I was tempted because I didn't know whether I'd ever be back in Hong Kong and the finest English worsted for \$50 was a bargain.

"No War." "I don't know whether I'll ever get back here," I said. He looked a little puzzled and I added, "You know, war. Maybe the Communists will take over Hong Kong pretty soon."

"War?", he said. "No war, no war" and laughed loudly. "You'll come back. No war." When I left the shop he was still laughing in amusement to think that anyone had doubts about Hong Kong.

I hope he's right. As a matter of fact there was great calmness in Hong Kong in January and probably more now than then. A few of the British who had been caught there by the Japanese were getting uneasy—they didn't want to get caught again. But for the most part the city's life was going on just as it always has except for the talk of U. S. embargos. The U. S. was getting mighty unpopular over that.

Cooking Perfumes. I have never seen so many stores filled with so



much of everything. There were some shops devoted to nothing but fountain pens—pens of every make in the world. Watches were abundant. In the Chinese section the jewelry stores extended for over a half mile, one shop after another and all doing business. The Chinese are great traders. I doubt if there was a single thing made in the world that couldn't be bought in Hong Kong except perhaps a television set.

Wandering around the Chinese area my wife found a shop selling exoticly perfumed cooking oils. If you wanted a rose flavor for your soup, they had it. Or sweetpea flavor for your salad. Others were jasmine, sandalwood and lotus. How about some geranium on your fried egg tomorrow morning? Of course there are a lot of gosh-awful kinds of things which the Chinese eat and which aren't designed to increase the appetite of the staid westerner.

NEWS SECTION

(Continued from opposite page 3)

Bulldozer Drop: Six parachutes were used by USAF recently to test-drop a 19,000-pound bulldozer. Believed to be the heaviest load ever dropped, the bulldozer was in operation five minutes after landing.

Human Dummy: Wright Air Development Center scientists have devised a metal, plastic and Fibreglas dummy to be used for drop, crash impact and acceleration and deceleration tests.

McDonnell Helicopters: CAA reports McDonnell helicopter models 79 and 79A, which are now being subjected to tests of components, will not be presented for final approval for some time.

MILITARY

Korean Air Lift: At the end of the first year of the Korean air lift, Military Air Transport Service reported it had flown 91,500 passengers and 20,600 tons of cargo to the Pacific and had brought 28,000 travellers and wounded to the U. S.

New ATC Bases: USAF survey teams are inspecting sites near Wilmington, N. C. and Myrtle Beach, S. C. with the idea of building Air Training Command bases there.

Sub-Contractor Clinics: Armed Services will hold small business clinics at Cleveland July 23-27 and in St. Louis July 30-August 3.

Procurement Office Move: USAF's Midcentral Air Procurement District has moved to 165 North Canal Street, Chicago.

Awards: Marine Lt. Col. Marion Carl received the Institute of the Aeronautical Sciences' Octave Chanute award while Dr. John B. Johnson, Office of Air Research at Wright-Patterson AFB, was given the Thurman H. Bane award.

CONGRESS

Separation Hearings: During the week, CAB, Budget Bureau, the Air Transport Association and the Aircoach Transport Association came out against S. 1697, Sen. Edwin C. Johnson's bill to separate mail pay and subsidies to airlines. Meanwhile, Rep. Carl Hinshaw (R., Calif.) proposed a fixed sum per pound for mail regardless of the distance it was carried. Johnson delivered an attack against CAB, accusing it of accomplishing nothing on separation despite years of prodding by Congress. He insisted the only way to accomplish separation was for Congress to take the first step.

Entry Permits: Rep. Robert Crosser (D., Ohio), chairman of House Interstate and Foreign Commerce Committee, has introduced H. R. 4621, which transfers from CAA to CAB the responsibility for issuing entry permits to foreign planes. He maintains economic considerations are now as important as safety.

AIRLINES

Agreement Cancelled: CAB has dismissed an agreement between Slick Airways and U. S. Airlines involving the lease of three U. S. Curtiss C-46's to Slick. Both parties requested voiding of the pact.

TCA Equipment Plans: Trans-Canada Air Lines is dickering for more airplanes and is studying both the Douglas DC-6B and the Lockheed 1049. It may also obtain three Canadair 4M's from Canadian Pacific Air Lines when the latter takes delivery on new equipment. TCA is not considering any turbojet transports at the moment.

TWA Keeps Connies: An Aviation Week story claiming TWA was considering exchange of some of its Lockheed Constellations for Boeing Stratocruisers owned by Northwest Airlines has been denied by TWA officials. The idea was under consideration some months ago but was dropped.

\$500,000 for DC-4: Pacific Northern Airlines has bought a Douglas DC-4E fitted with Pratt & Whitney R-2000-13 engines from Aerovias Guest for \$500,000, believed to be a record price for this type of plane.

Non-Sked Military Discount: Non-skeds have been authorized by CAB to give discounts to military passengers amounting to 10% of first class one-way or round-trip fares or 5% of "all other passenger fares." No other reductions may be offered for charter, commutation, excursion or other promotional fares.

IMATA Picks Oakland: Independent Military Air Transport Association has selected Oakland Municipal Airport as a military personnel distribution point. Agency acts as liaison between Defense Department and non-scheduled carriers.

U. S. Airlines Refinancing: U. S. Airlines, certificated cargo operator, will sell controlling interest to Charles B. Ripley, New York industrialist and present director of Seaboard & Western, if stockholders approve new plan on July 17. Ripley would resign S&W directorship under the deal which calls for his purchase of 1½ million shares of U. S. stock at 5c par value and up to \$400,000 worth of 5% debenture bonds. He also would be permitted to nominate majority of members of U. S. board of directors. U. S. board of directors have okayed the deal.

Commissions Limited: An Air Traffic Conference agency contract amendment now limits travel agencies to commissions no larger than the 5-10% paid by scheduled airlines. Some agencies also sell non-sked tickets and receive commissions up to 30%.

Swissair DC-6B: First Douglas DC-6B to go to Europe has been delivered to Swissair. The firm has two more on order.

Convair Purchase Approved: Northeast Airlines' plan to buy five Convair Model 340's from Consolidated Vultee Aircraft Corp. has been approved by CAB. Joint holdings of the Atlas Corporation in NEA and Convair necessitated prior Board approval. Delivery is expected in 1953.

People: Ed T. Bolton, executive v.p. for Philippine Air Lines, will return to U. S. from Manila to become vice president-adviser of PAL. . . Harold A. Olsen has been elected v.p. of Pacific Northern Airlines. . . Grant Titsworth, assistant treasurer for Pan American World Airways, resigned to practice law at Darien, Conn.



CIVIL AERONAUTICS BOARD

"Big Four" Rate Agreement: CAB expects to issue a new mail rate show cause order to "Big Four" carriers as result of informal agreement reached with the lines. Order will contain rates believed to be about 45c per ton-mile for the future and 60c for the past. Meanwhile, hearings in the Big Four Rate Case slated to last six weeks were halted after two weeks, pending the new order.

Airnews' Surrender Offer: Airnews, certificated cargo line, has offered to surrender its certificate to CAB to eliminate need for hearings in revocation proceeding brought by Board. Certificate is valid until July, 1954, and applies between San Antonio and Corpus

Christi/Brownsville. CAB enforcement attorneys and Braniff Airways complained Airnews is not complying with terms of certificate, particularly those requiring supplemental truck service to outlying areas. This led to revocation show-cause order. Airnews terms truck service requirement "neither wise nor expedient," but said it would give up rather than submit to lengthy litigation.

Non-Sked Rule Delayed: Controversial non-scheduled airline regulation No. 291 has been postponed indefinitely by CAB in view of injunction issued recently by U. S. District Court. Scheduled to become effective July 5, proposed rule is now delayed pending appeal of the injunction to a higher court. It was postponed three times previously pending investigation report of Senate Small Business Committee. Rule is aimed at limiting non-skeds to three monthly flights between selected heavy traffic points and eight between all others.

WAL Route Sale Profits: CAB partially reversed itself and allowed Western Air Lines to keep certain profits from sale of Los Angeles-Denver route to United Air Lines. Last November, Board considered entire net profit from sale as "other revenue" with result that WAL owed the government \$747,000 in alleged mail "overpayments." Under reversed policy, profits from intangibles, such as route earning power, are not considered "other revenue" and overpayment claim is reduced to \$404,000. Reason for switch, CAB said, is to encourage voluntary route transfers. In same decision, however, CAB held that "other revenue" included net profits from restaurants, concessions and slot machines operated by Western.

ACTIONS

- **Northwest Airlines'** authority to serve Taipei, Formosa, as an intermediate on its Pacific route extended by CAB until May 18, 1952, NWA began serving the point one year ago following suspension of operations to Shanghai.

- **Transocean Air Lines** granted one-year exemption to operate among islands in the Trust Territory of the Pacific, which came under civilian rule on July 1. Exemption permits service to Saipan, Yap, Koror, Truk, Ponape, Kwajalein, Majuro and Guam. Transocean will operate four Navy PB5A aircraft under a lease arrangement. Special civil air regulation issued by CAB permits increase in allowable gross weight from 28,000 to 30,000 pounds during life of the exemption.

- **Non-Scheduled airline agreements** providing for special fare discount tenders to the military approved until June 31, 1952. One involves eight lines represented by Independent Military Air Transport Association; the other, 29 lines comprising the Aircoach Transport Association. Discount is ten per cent from first class fares with a five per cent cut "from all other passenger fares." Two Board members, Josh Lee and Chan Gurney, continued their opposition to military discounts by dissenting.

- **Tour basing fares** of Pan American and Braniff were found to be unjustly discriminatory and in violation of the Act. Fares are 25% under standard and are usable only in connection with package tours including hotel and other similar charges. CAB said they "embody the essentials of a tie-in" and ordered them cancelled in 20 days. However, Board told carriers they may file special "excursion" fares between the same points.

- **Complete revision** of rules of practice has been circulated in draft form by CAB with comments of interested parties due July 27. Purpose, CAB said, is to expedite economic proceedings.

Applications and Petitions

- **Northwest Airlines** applied for amendment of Route 3 certificate to include Chicago as an intermediate between Detroit and Milwaukee. Change would permit NWA, which operates direct between Detroit and Milwaukee, to provide through-plane transcontinental service via Chicago.

- **El Al Israel Airlines** requested amendment of its foreign air carrier permit to serve Amsterdam, Brussels, Luxembourg and Istanbul on trans-Atlantic flights. Present permit authorizes service between New York and Lydda via points in Greece, Italy, Switzerland, France, England, Iceland, Greenland, the Azores and Canada. Line also asked that amended permit reflect new name of El Al Israel Airlines, Ltd., instead of El Al Israel National Airlines, Ltd.

Examiners Reports

- **Wisconsin Central Airlines'** certificate for Route 86 should be renewed until October 3, 1953, with certain modifications, according to report of Examiner Warren E. Baker. Fourteen points would be dropped under Baker's proposal, but Wausau-Eau Claire-Twin Cities segment, now served under an exemption, would be added to the certificate. Examiner urged suspension of Northwest Airlines' service at Eau Claire to prevent duplication of Wisconsin Central's operation, but recommended against discontinuing NWA at Duluth-Superior.

CIVIL AVIATION

GI Bill: Those wanting to take flight training or other studies must be enrolled in a course by July 25 or they forfeit their right to educational benefits under the GI Bill of Rights. The deadline applies to all discharged before July 25, 1947.

LABOR

New Union: Office Employees International Union-AFL has entered the aircraft industry. Consolidated Vultee's Fort Worth office help voted it in 857-180.

Boeing Pact: Agreement calling for boosts averaging 11.83 cents an hour at Boeing Airplane Co. has been ratified by International Association of Machinists. Workers get six cents an hour retroactive to May 22 immediately and the remainder goes to Wage Stabilization Board for approval. AFL unionists also got union security clause, other fringe benefits and an interim wage reopener after six months.

Republic Salary Hikes: Salaried employees of Republic Aviation Corp. have been approved for a 10% pay boost retroactive to February 19 by the newly formed Salary Stabilization Board. Republic will pay the retroactive amount July 30.

FINANCIAL

Airlines

Northwest Airlines paid \$1,000,000 on its 4% bank loan, reducing its long term indebtedness to \$15,140,363.

National Airlines will pay 25c a share July 20 to stockholders of record July 10.

Capital Airlines had a net profit of \$135,771 for May as against a net of \$214,668 in May, 1950.

Northeast Airlines netted \$16,562 in May compared with a \$33,221 loss in May, 1950. For the first five months Northeast netted \$28,255 as against a \$316,894 net loss for the same period last year.

Manufacturers

Consolidated Vultee Aircraft Corp. reported net income for six months ending May 31 of \$4,113,322, or \$1.75 a share, as against \$4,466,527 for same period last year.

United Aircraft Products, Inc., Dayton, had a net of \$25,194 for six months ending May 31, compared with \$32,366 for like period last year.

Bell Aircraft Corp. will pay a \$1 dividend July 20 to stockholders of record July 6.

Consolidated Vultee Aircraft Corp. will pay a 35c dividend Aug. 24 to stockholders of record Aug. 14.

Thompson Products, Inc. earned approximately \$5,000,000 for six months ending June 30, or \$4 a share, as against \$4,080,301, or \$3.28 a share, for first half of 1950.

AROUND THE WORLD

European Air Lanes: IATA European Air Traffic Control panel has proposed a network of reserved air lanes in order to control traffic along European routes having 100 or more plane movements weekly. These lanes would be aligned with existing or proposed airways as far as possible.

Spanish Line in IATA: Aviacion y Comercio, S.A., Madrid, which operates routes to Africa from Spain, has been admitted to the International Air Transport Association.



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THE AVIATION INDUSTRY'S FIRST NEWS MAGAZINE

NEWS ISSUE

July 16, 1951

Vol. 15 No. 7

a LOOK at the WEEK

Usual bickering in government over who will have what powers is still holding up acceptance by Harold Boyer of Aircraft Production Board chairmanship. Boyer won't take the job if he's going to be hamstrung by any of the member agencies.

First official admission that plane production would not increase five-fold in a year, as President Truman predicted in December, came from Mobilizer Charles Wilson's recent report. It said deliveries are two-thirds greater now than last June and will triple in the next year.

Competition for skilled labor is getting tougher for prime aircraft manufacturers. They can meet hourly rates offered by subcontractors but they're held to 40-hour week, while suppliers offer 30% more take home pay for 48 hours.

As during World War II, increased hours of work are tending to increase absenteeism. Aircraft firms on the 40-hour week average 4% of their workers away from the job while those with a six-day week find their absentee roster runs between 6% and 8%.

Decision to switch many items for military planes to National Production Authority's Aircraft Division, which is responsible for civil and commercial aircraft, resulted in a brief but wild scramble to find the extra controlled materials to cover these items, since Defense Department insisted on keeping its full allocation. NPA finally found the extra steel, copper and aluminum elsewhere.

NPA's new Class B product list removes the asterisk from personal planes and helicopters so that they, like other consumer durable goods, can be included under Controlled Materials Plan for the fourth quarter of 1951, if necessary. Change means little to lightplane builders, however because they were included during the third quarter despite the marking.

Supplies of tungsten and molybdenum for use in jet engines should increase soon. Eleven nations have agreed to give the U. S. 44.8% of the tungsten and 77.8% of the molybdenum they produce.

Wage Stabilization Board will probably grant most aircraft firms' petitions for wage increases above 10% because of the industry shortage of skilled help.

Controlled Materials Allocated

Office of Program and Requirements, Defense Production Administration, has allocated supplies of controlled materials to the military, claimant agencies and National Production Authority industry divisions.

Of interest to the aviation industry are allocations for airports, federal airways and civilian aircraft for 1951's third quarter.

Civil Aeronautics Administration and Civil Aeronautics Board (Airports): 271,000 pounds of copper, 2,782 tons of steel and 23,000 pounds of aluminum.

Office of Federal Airways: 200,000 pounds of copper, 285 tons of steel and 13,000 pounds of aluminum.

Aircraft Division (NPA): 1,216,000 pounds of copper, 14,755 tons of steel and 8,462,000 pounds of aluminum.

Defense Department: Allocations unlisted for security reasons.

New DPA Procurement Group

Defense Production Administration's Procurement Policy Committee, which until now has been little more than a paper organization, is taking shape. It will be headed by Donald G. Leslie, former vice president of the Torrington Manufacturing Co.

Representatives: General manager of Atomic Energy Commission; Defense Department delegate; General Services Administrator Jess Larsen; and spokesmen for other agencies concerned with procurement.

Responsibilities: Assist DPA Administrator in procedures for "equitable relationships" between defense contractors and the Government; review contract and renegotiation policies to achieve uniformity among procurement agencies; review performance of these agencies to see that they carry out policy.

Committee will consider the interests of small business, geographical dispersal of defense contracts and proper utilization of special skills.

Big 4 to Pay U. S. \$5 Million

New air mail rates for the Big Four will result in those airlines returning \$5,000,000 to the government, as of Mar. 31, 1951.

The lines, American, United, TWA and Eastern, have reached agreement with CAB to accept 63c per ton-mile for the period from the institution of the proceeding for each carrier through Dec. 31, 1950, and 45c per ton-mile from Jan. 1, 1951.

The CAB told Sen. Edwin C. Johnson (D., Colo.), chairman of the Senate Interstate and Foreign Commerce Committee, that "it is anticipated that the Board will issue a new order to show cause proposing the new rates and that thereafter the case can be completed very quickly."

CAB also told Johnson:

Domestic Separation: On or before Sept. 30, 1951, it will send to the President and Congress a "special report which will be an administrative separation by the Board of the compensatory and subsidy elements of mail pay for all the domestic air carriers."

International Separation: On July 1, 1952, a similar special report will be submitted with respect to international air carriers covering fiscal year 1953.

Committee Hits CAB on Non-Skeds

Senate Small Business Committee has urged to CAB that it rescind proposed new non-scheduled airline regulation which would place immediate limitation on scheduled operations.

REFERENCE COPY

Highly critical of CAB for alleged "protection" of certificated carriers, report also contains recommendations that:

CAB issue a temporary regulation permitting non-skeds to fly sufficient trips to allow profitable operations.

Procedure be established to enable non-skeds to file for permanent authority to operate unsubsidized second class or coach type route service without regard to regularity, but limited as to total allowable flights.

Report charged CAB with failure to face problems of a new development in the air transport picture, that of the air coach. In fact, Committee feels CAB might reassess its whole approach toward air transportation instead of continuing solely to subsidize a "high-cost luxury air service for a small part of the population."

Colonial, Janas Arraigned

CAB's case against Colonial Airlines and some of its officers was dropped on the same day Colonial and former president Sigmund Janas, Sr. were arraigned in Federal Court in New York for possible criminal violations of the Civil Aeronautics Act.

CAB dropped its probe with an order to cease and desist from further violations, a move in line with agreement under which Janas and Colonial consented to prosecution in court. However the CAB case may be reopened if such violations occur or if the Board's enforcement office thinks it necessary. CAB directed Colonial to file in 60 days a complete report of methods of compliance with the cease and desist order and directed Janas to file in 15 days a report of his stock ownership "and other interests."

Before Federal District Court Judge Sylvester Ryan, Janas was released on \$1,000 bail following "not guilty" plea to the alleged violations. Colonial was granted to July 18 to enter a plea and Alfons Landa, new president, immediately announced that a private firm would make an independent audit of the charges in the meantime. Expecting "nolo contendere" pleas, which Judge Ryan would not accept, CAB is now keeping a sharp eye on future developments in the court proceeding.



MANUFACTURERS

Wilson on Aircraft: In his second quarterly report, Defense Mobilizer **Charles E. Wilson** declared that more than half of the \$6 billion to be used for defense plant expansion will go for aircraft production. He also said plane deliveries are two thirds greater than last year and will triple in the year ahead. Other points: Output of aviation gasoline is up 55% over last year; USAF awarded 18% of its contracts to small business in April; quantity production of the Boeing XB-52 is two years away; shortages of alloying metals are being helped by controls on the use of cobalt, columbium,

molybdenum, nickel and tungsten; manpower shortages will lessen as civilian industries convert, but 1.5 million new workers will still be needed.

Canadian CMP Allotments: Canadian producers of defense products will be able to receive allotments of controlled materials from the U. S., and suppliers of metals will honor U. S. and Canadian requests on the same basis.

Missile Plants: A guided missile plant now being built at Pomona, Calif., by Navy's Bureau of Ordnance will be operated by Consolidated Vultee Aircraft Corp. after completion in 1952. A \$30,000,000 missile plant to be built by Navy near Bristol, Tenn., will be operated by Sperry Gyroscope Co. and will employ between 1,500 and 2,000.

Dollar Titanium: Horizons, Inc., Cleveland, has developed a titanium production process which reduces the cost from \$5 to \$1 a pound.

Small Business Liaison: USAF's Office of Small Business has asked prime contractors to name an officer as small business liaison agent with Air Materiel Command, Dayton. They will be asked to encourage sub-contracts to small businesses.

ADMA Managing Director: **Thomas A. Fernley, Jr.**, former advisory secretary, has been named managing director for the Aviation Distributors and Manufacturers Association.

Metalworking Directory: A revised "Directory of Metalworking Machinery" will be available for \$3.50 from the Government Printing Office August 1. Compiled by the Munitions Board, the directory lists all current manufacturers and machines.

Lockheed Press: The \$750,000 Birdsboro hydraulic press to be used by Lockheed Aircraft Corp. for integral stiffening of large sections weighs more than 2,370,000 pounds and is the heaviest in the aircraft industry.

People: Col. **John S. Griffith** named assistant to president of Aircraft Engine & Parts Corp. . . . **Howard A. Eckels** appointed general manager of Air-Parts, Inc. . . . Lt. Gen. **Albert C. Wedemeyer** becomes vice president of Avco Manufacturing Corp. September 1.

New Plants

Chrysler Corp. will operate a \$91,000,000 Navy plant to be built for production of Pratt & Whitney J-48 jet engines. It will be located in McComb County, Mich.

Kaiser-Frazer Engine Division will use its Dowagiac, Mich. plant to produce parts for the Wright R-1300, which K-F will build at Detroit.

AIRResearch Manufacturing Co. of Arizona plant at Phoenix is just about completed.

Kaiser-Frazer Aircraft Division is adding a 50,000 foot wing to the Oakland, Calif., plant.

Douglas Aircraft Co. will construct an electronics building at Tulsa to be used in connection with inspection and final check-out of Boeing B-47's which Douglas will build there.

Republic Aviation Corp. will spend \$1,500,000 to expand its Farmingdale plant. Completion date is January, 1952.



PLANES & EQUIPMENT

Skyrocket Records: Douglas Aircraft Co.'s D-558-2 Skyrocket has flown higher and faster than any other plane, the Navy says. Douglas test pilot **Bill Bridgeman** flew the rocket-powered craft with the jet engines removed after it was dropped from a Boeing B-29.

R-2800 Price Hike: Pratt & Whitney's increase of \$7,000 in the price of its R-2800 engine will directly affect all airlines which have ordered Convair 340's, Douglas DC-6B's or Martin 4-0-4's.

Commander Distributors: Aero Design & Engineering Co., which will start deliveries of the Aero Commander in September, has named nine distributors. They are Trans-Texas Airways, Houston; Van's Air Service, St. Cloud, Minn.; Aviation Consultants, Reading, Pa.; Great Lakes Airmotive, Ypsilanti, Mich.; Mid-States Aviation, Chicago; Arthur Meurer Co., New York.

American Aviation

News Issue



Vol. 15, No. 7

WAYNE W. PARRISH, Editor and Publisher

ERIC BRAMLEY, Executive Editor

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Buffalo (N.Y.) Aeronautical Corp.; Morgan and Waltz, Mexico City; and Downtown Airpark, Oklahoma City.

Gas Consumption Up: Demand for aviation gasoline during the first four months of 1951 totalled 19,487,000 barrels, an 80.5% increase over the 10,797,000 barrels used in the same 1950 period. Production of aviation fuel during the period amounted to 17,716,000 barrels while last year's output reached only 8,703,000.

Lightplane Radio: A \$307 Avigator Jr. VHF radio set for lightplanes is being produced by Mitchell Industries, Mineral Wells, Texas. Set weighs 10.5 lbs. and is available with omni at extra cost.

Douglas Self-Certification: Douglas Aircraft Co. has been authorized to certificate production models of its DC-6A and B models. Douglas inspector **F. C. Rockhold**, who was CAA designee on the DC-6, will perform the certification on the later versions.

Helio Production: Helio Aircraft Corp. will have its first production model late this summer despite several plane changes resulting from the Korean war.

Convair Modifications: Western Air Lines soon will modify its 10 Convair 240's so that they will have an allowable gross weight of 41,790 pounds, as well as provide greater engine power, cruising speeds and better ignition.

MILITARY

New AF Depot: Air Force plans to establish an additional aircraft maintenance depot, including an airfield, at Lancaster, Pa., near the existing depot at Olmsted AFB, Middletown, Pa. AF will close Olmsted to flying activity and transfer most of the aircraft and associated equipment maintenance work from Olmsted to the new base. Expansion program will cost about \$74,000,000, including some work at Olmsted. About 5,000 civilian workers will be employed at the new depot. No specific site has been chosen.

Army Training Schools: Army pilots in the Second Army Area will receive instrument flight training at Hinson Aviation Co., Baltimore; Central-American Airways Flying Service and Louisville Flying Service, both of Louisville; and the Lynchburg (Va.) Aircraft and Sales Corp.

El Centro Merger: Navy's parachute test base at El Centro, Calif., will be jointly operated by USAF in September. Move will eliminate duplication of test personnel, equipment and technology.

Shilling Wins Trophy: Non-stop flight from England to the U. S. in a Republic F-84E equipped for in-flight refueling has won the 1951 Harmon International Aviation Trophy for Col. **David C. Shilling** as outstanding aviator of the year. No awards were made for outstanding aviatrix and lighter-than-air aeronaut this year.

CONGRESS

Stockpiling Criticized: Senate Armed Services Preparedness Subcommittee has issued a caustic report on the Munitions Board and Army programs for stockpiling tungsten, declaring the stockpile to be "pathetically small."

Hinshaw Plan Study: A consultant **H. E. Wehmler**, has been hired by the Senate Interstate and Foreign Commerce Committee to analyze a mail pay formula offered by Rep. **Carl Hinshaw** (R., Calif.) last week. Hinshaw proposed that carriers be paid a fixed rate per pound for mail carried, regardless of the distance, including a minimum guarantee of \$25 per stop for off-loading of mail.

AIRLINES

TCA Orders: Orders for new transports are expected soon from Trans-Canada Airlines. Both the Douglas DC-6B and Lockheed's 1049 Constellation are under consideration.

NEA Charters EAL DC-3's: CAB has okayed an arrangement under which Northeast Airlines will charter DC-3's from Eastern Air Lines for regularly scheduled service between New York and Worcester, Mass., during the summer months. It marks reversal of an operation conducted during the winter in which NEA chartered its Convairs to Eastern for New York-Washington service.

NWA Promotes Mariner: **James W. Mariner**, cargo sales director for Northwest Airlines, is to be named general sales manager of the company, a new position.

American Protests: American Airlines is paying increased fees charged by San Francisco International Airport since last January 1 under protest. Western Air Lines is refusing to pay the higher rates and has started court action. Trans World Airlines is marking time on the court action against the Frisco Public Utilities Commission awaiting pre-trial conferences on permanent rates.

Slick Utilization: Preliminary figures for June show that Slick Airways achieved 8.8 hours daily utilization from its new Douglas DC-6A cargo plane. June was the first full month of the DC-6A by Slick.

Transocean Utilization: Transocean Air Lines got an average daily utilization of 13 hours out of its planes on the Korean air lift during the first year. At certain times TOAL planes were used as much as 17½ out of 24 hours.



CIVIL AERONAUTICS BOARD

Chicago-Washington Shelved: CAB has called off, at least for the time being, its 2½-year-old investigation of airline services between Chicago and Washington. Board said "very substantial increases in traffic" since the investigation was started in February, 1949, indicate that the immediate need for such a study is not now required. Case involved possible elimination of Chicago-Washington routes of Capital, American, TWA or United.

Actions

- **Pan American World Airways and Eastern Air Lines** turned down on petitions for further hearings on issues growing out of W. R. Grace & Co. stock acquisitions in National Airlines. But Board reopened the record in the case to receive additional evidence on the "sole question of whether Grace has acquired control of National within the meaning of Section 408 of the Act." Hearings originally were held as part of the National Dismemberment Case.

- **Resort Airlines** granted exemption for six months to transport in contract operations approximately 5,000 agrarian workers between points in U. S., on the one hand, and points in the West Indies and Caribbean area.

- **Airline Transport Carriers** granted individual exemption to continue large irregular carrier activities for two years.

- **Professor J. Harold Tarbell**, Lafayette College, granted exemption to arrange charter transportation for group of 47 persons traveling for educational purposes. BOAC and SABENA will provide the transportation from New York to Brussels, London, Cairo, Teheran, Bangkok, Athens, Rome and Paris.

Examiners Reports

- **Applications of Continental Air Lines, Central Airlines and Roscoe Charter Service** for new service to additional points in Kansas recommended for denial by Examiner **Ralph L. Wiser**.

AA

Applications

• **United Air Lines** applied for exemption to authorize service to Klamath Falls and Medford, Oregon, on the same flights. United previously asked removal of the certificate restriction which prevents such service and urged that exemption authorization be granted pending action on removal request.

CAB Calendar

July 17—Oral argument before the Board in West Coast Airlines Certificate Renewal Case. Washington. (Docket 3966 et al.)

July 19—Oral argument before the Board in Trans American Airways Revocation Proceeding. Washington. (Docket 4161).

July 23—Hearing in Mid-West Airlines Certificate Renewal Case. Washington. (Docket 4052 et al.)

July 23—Oral argument before the Board in Frontier Airlines Certificate Renewal Proceeding (Routes 73 & 74). Washington. (Docket 4340 et al.)

July 24—Hearing in Denver-Kansas City-St. Louis Interchange Case. Washington. (Docket 4926).

July 26—Hearing in Tulsa-Kansas City Service Case (Braniff Airways and Continental Air Lines). Washington. (Dockets 2936 & 4968).



FINANCIAL

Airlines

TACA International Airlines, S. A., reported a 1950 net loss of \$355,167 on revenues of \$2,136,787 as against a 1949 loss of \$87,498 on revenues of \$1,461,071.



LABOR

UAL Talks Move: National Mediation Board has transferred talks between United Air Lines and its pilots to Washington from Chicago. No indication of progress has been given by NMB Secretary **Thomas E. Bickers**. UAL accident just after the pilot strike ended halted negotiations temporarily.

Republic Training Schools: Job training schools are being conducted by Republic Aviation Corp. at Freeport, Hempstead, Farmingdale and Huntington, Long Island. On August 6 two other schools will be opened at La Guardia Airport and North Amityville. They will be operated for Republic by Casey Jones School of Aeronautics.

Lockheed Marietta Rates: Wage Stabilization Board has approved Lockheed Aircraft Corp.'s proposed rates for Marietta, Ga., plant. Pay will range from \$1.05 to \$2.07 an hour, slightly lower than Lockheed's scale at Burbank.

Thompson Products Pact: Wages of 13,000 workers of Thompson Products, Inc., have been tied to the cost of living index under a new pact signed between the firm and the independent Aircraft Workers Alliance. They also agreed on a hike of 11 cents an hour, part of which must be approved by Wage Stabilization Board.

Menasco Contract: International Association of Machinists-AFL and Menasco Manufacturing Co. agreed on a pact calling for an immediate three cent an hour hike and an additional 10 cents to be approved by Wage Stabilization Board. In addition, wages were tied to quarterly cost of living index and minor inequities in certain job classifications were eliminated.

North American Petition: One cent an hour boost because of the increased cost of living is being sought from the Wage Stabilization Board by North American Aviation, Inc. Proposed increase would raise cost of living allowance to 10 cents an hour since NAA and the United Auto Workers-CIO signed their agreement last October.



CIVIL AVIATION

CAA Rule Revision: Proposed revision of Part 625 of CAA regulations would require prior notice of planned construction or alteration near civil airways and landing areas. The Office of Federal Airways will receive comments on the revision until August 3.

Traffic Rule Changes: CAB will soon issue Draft Releases on four changes to Part 60 of Civil Air Regulations which will allocate areas for practice of acrobatics. Minimum altitudes will be set at 500 feet, according to ICAO standards. Traffic pattern entry will be standardized. Waivers will be available for air meets and for aerial applicators and patrol planes.

NATC Membership: National Air Taxi Conference now has 53 certified member-operators with more applications coming in regularly. Some areas across the country still need additional coverage.

Lightplane Shipments Down: A total of 232 one-to-10 place personal planes were shipped in May as against 359 during the same month of 1950. Despite the drop, dollar value rose from \$1,702,000 in May, 1950, to \$1,759,000 in May, 1951.



AROUND THE WORLD

Bristol Purchase: Canadian Wright Ltd., aircraft engine and repair subsidiary of Mailman Corp. Ltd., has been purchased by Bristol Aeroplane Co. of Canada, Ltd. **W. R. Verdon-Smith**, executive director of the parent Bristol company, heads the new Bristol Aeroplane Engine (Eastern) Ltd., which operates the newly bought firm.

AVE Seeks Operator: Aerovias Venezuela Europas, which operated a certified route from Caracas to Lisbon, Madrid, Paris and Rome at a slight profit last year with two Douglas DC-4's, is looking for a carrier to operate the route under contract. AVE had to suspend operations in April because of currency exchange and spare parts problems.

Saab Order: Royal Swedish Air Force has ordered a "considerable number" of three-place trainers commercially called the Saab 91B Trainer/Tourer and designated the Sk 50 by the Swedish military. The Dutch De Schelde factory at Dordrecht will produce the planes because no room was available at Saab's own factories.

Thurlow Award: Dr. E. G. Bowen of Australia's Commonwealth Scientific and Industrial Research Organization has won the Institute of Navigation's Thomas L. Thurlow Award for 1950 for his work on radio aids to all weather air navigation and traffic control.



COMING UP

July 19-20—NASAO board of directors meeting, Kentucky Dam State Park, Ky.

July 20-22—CAP National Drill Competition, Andrews AFB, Washington, D. C.

Aug. 15-19—99's 5th annual All Woman Transcontinental Air Race, Santa Ana, Calif., to Detroit.

Aug. 18-19—National Air Races, Detroit, Mich.

Aug. 22-24—Institute of Radio Engineers and 7th annual Pacific electronic exhibit.

International

July 17-18—European ignition conference, Savoy Hotel, London.

Sept. 3-14—Third International Conference convened jointly by the Royal Aero. Society and the Institute of the Aero. Sciences of America, Brighton, Sussex, England.

Sept. 4—ICAO, SAR, 3rd session, Montreal.